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▶ Do Employers Discriminate Against Married Women? Evidence from A Field Experiment in Egypt

▶ **Do Employers Discriminate
Against Married Women?
Evidence from A Field
Experiment in Egypt**

Caroline Krafft

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▶ Abstract

Do employers discriminate against married women? This research submitted fictitious resumes to online job postings in Egypt, randomizing gender and marital status. More job postings explicitly required men (14 per cent) than women (4 per cent). Despite the gender discrimination in postings, women were only slightly less likely to receive callbacks than men, with only a small difference between single and married women. Differences in callbacks by sex and marital status were not statistically significant. Women and especially married women were, however, particularly likely to be asked for more information rather than scheduled for an interview. The findings suggest that the low employment rate of women and especially married women in Egypt, at least in the segment of the labour market we are able to examine, is not primarily due to employer discrimination at the callback stage.

Keywords: Discrimination, Gender, Marital Status, Labour Market, Field Experiment, Correspondence Study, Egypt.

► Introduction

Around the world, far fewer women are employed than men. As of 2022, while 68 per cent of men were employed globally, only 44 per cent of women were employed (ILO 2022). When they marry and have children, women are less likely to be employed (Angelov, Johansson, and Lindahl 2016; Kleven, Landais, and Sogaard 2019; Kuziemko et al. 2018). If they do engage in employment, married women may face a motherhood wage penalty (Correll, Benard, and Paik 2007; Kleven et al. 2019). In contrast, for men, family formation is associated with higher rates of employment and a fatherhood wage premium (Glauber 2018).

Both supply- and demand-side factors have a role in these gendered, life-cycle labour market disparities. On the supply side, gender norms emphasize women's caregiving, thus increasing their opportunity cost of time and exits from employment (Assaad, Krafft, and Selwaness 2022; Attanasio, Low, and Sánchez-Marcos 2008). On the demand side, employers may discriminate against women and particularly married women (Arceo-Gomez and Campos-Vazquez 2014; Bedi, Majilla, and Rieger 2022; Zhang et al. 2021). There is, however, relatively less research on these demand-side factors than supply-side issues, in part due to the challenges of accurately assessing discrimination.

This paper investigates employer discrimination against women and especially married women, based on a field experiment in Egypt. The Middle East and North Africa (MENA) region has the world's lowest female labour force participation (FLFP) (Verick 2018). As of 2021, only 15.2 per cent of Egyptian women were in the labour force and only 12.8 per cent were employed (Central Agency for Public Mobilization and Statistics (CAPMAS) 2021). In the experiment, gender and marital status were randomized on 2,676 resumes sent to 710 online job postings.

Among all the online job postings, 14 per cent explicitly stated they required a male applicant and 2 per cent preferred a male applicant. Only

4 per cent required a female applicant and 79 per cent did not specify applicant gender. Less than 1 per cent stated a preference for marital status (single). Although this is clear evidence of labour market discrimination tied to gender and particularly specific occupations, women were, on average, only slightly less likely to receive callbacks (10.4 per cent) than men (12.0 per cent). Married women were the group least likely to receive callbacks (9.8 per cent), followed by married men (10.7 per cent), single women (10.9 per cent) and lastly single men (13.2 per cent). Married women were, additionally, the most likely to have callbacks asking for more information (37.0 per cent of positive callbacks), with lower rates for single women (27.0 per cent) and much lower rates for men regardless of marital status (8-11 per cent). Men were more likely to have an interview scheduled (82-83 per cent). In multivariate models, there were not statistically significant differences in callbacks by sex or marital status. Nor was there significant heterogeneity in callbacks when assessing differences by industry, economic activity, or most skill requirements.

These findings are an important addition to the extant but limited literature using field experiments to assess gender discrimination (Azmat and Petrongolo 2014; Bertrand and Duflo 2017; Lippens, Verrmeiren, and Baert 2021). Most of the literature does not find discrimination against women, on average (Lippens, Verrmeiren, and Baert 2021). Yet, there may be discrimination both in favour of and against women in different segments of the labour market (Azmat and Petrongolo 2014). A recent review of the discrimination field experiment literature highlighted the paucity and importance of studies examining the bias against women with children (Bertrand and Duflo 2017). Furthermore, as of 2021, most field experiments on gender were from developed countries, along with almost all the studies on motherhood or marital status (Lippens, Verrmeiren, and Baert 2021).

This work, on gender and marital status from a developing country context, shows that married women do not necessarily face substantial employer discrimination, on average, at least in the labour market segment of online job postings this paper is able to examine. The findings are

in contrast to the body of evidence elsewhere showing that married women and mothers are often discriminated against in the labour market (Arceo-Gomez and Campos-Vazquez 2014, 2019; Bedi, Majilla, and Rieger 2022; Bedi, Majilla, and Rieger 2018; González, Cortina, and Rodríguez 2019).

This research also adds to the body of evidence trying to diagnose persistently low FLFP in developing countries generally and MENA particularly. MENA has the lowest FLFP of any region in the world, at 20 per cent (El-Kogali and Krafft 2020). In the private sector in MENA, nearly half of working women exit employment before or at marriage (Assaad, Krafft, and Selwaness 2022). There is a large body of research characterizing low FLFP in MENA, but primarily from the labour supply side (e.g. Assaad et al. 2020; Bursztyn, Gonzalez, and Yanagizawa-Drott 2020; Gauri, Rahman, and Sen 2019; Spierings 2014; Spierings, Smits, and Verloo 2010), with little evidence on labour demand and especially discrimination.

Only a few past experiments have assessed gender discrimination in the labour market in MENA. Correspondence studies in Turkey and Tunisia did not find discrimination against women, on average, and did find some potential favouritism of women in certain segments of the labour market (Alaref et al. 2020; Balkan and Cilasun 2018, 2019). A list experiment with certain sectors of employers in Egypt demonstrated employers both openly and in the experiment discriminated against women (Osman, Speer, and Weaver 2021). None of these studies assessed discrimination against married women, specifically.

The next section provides background on gender and marital status discrimination in the labour market, as well as the nature of Egypt's labour market specifically. Section 3 describes the methods of the experiment, the data collected, the resumes submitted, and the analysis of discrimination in job postings and callbacks. The results are presented in Section 4 in terms of job postings, callbacks, and estimates of discrimination as well as heterogeneity in discrimination. The final section discusses the implications of the findings

for understanding the low employment rates of married women.

► Background

Gendered employment over the lifecycle

Both supply- and demand-side factors have historically shaped women's participation in the labour force (Goldin 2006; Verick 2018). Marriage and childbearing decrease FLFP, since, given women's disproportionate role in caregiving, women face increased opportunity costs when they work (Attanasio, Low, and Sánchez-Marcos 2008; Bloom et al. 2009; Schultz 1997). Social norms that emphasize the role of men as breadwinners and women as caregivers may contribute to reductions in both the supply and demand for female labour and especially married women's labour (Jayachandran 2021; Spierings 2014).

Discrimination could also be a factor in low female and especially married female employment. Field experiments, both correspondence studies, sending fake resumes, and audit studies, sending matched male-female pairs of job applicants, have tested for discrimination. In developed countries, field experiments do not show discrimination against women in hiring, and some even favour women (Bertrand and Duflo 2017; Kline, Rose, and Walters 2021; Lippens, Verrmeiren, and Baert 2021). Women may, however, be discriminated against in terms of high-wage jobs (Neumark, Bank, and Van Nort 1996). There are fewer studies from developing countries, with findings of no discrimination against women on average in most cases (Alaref et al. 2020; Balkan and Cilasun 2018, 2019; López Bóo and Trako 2010), but some contexts showing discrimination against women (Zhang et al. 2021). Studies often find favouritism of women in female-concentrated sectors and favouritism of men in disproportionately male sectors (Alaref et al. 2020; Kübler, Schmid, and

Stüber 2018; Muradova and Seitz 2021; Zhou, Zhang, and Song 2013).

Some studies, globally, have specifically examined the interaction of parental or marital status and gender. The studies to date have usually found specific discrimination against mothers (Arceo-Gomez and Campos-Vazquez 2014, 2019; Bedi, Majilla, and Rieger 2022; Bedi, Majilla, and Rieger 2018; Bygren, Erlandsson, and Gähler 2017; González, Cortina, and Rodríguez 2019; Maurer-Fazio and Wang 2018). Single young women or married women without children may also face discrimination due to the expectation that they will, subsequently, become mothers and leave the labour force, or be less productive if they remain. A number of studies in Europe have found evidence to this anticipatory discrimination (Baert 2014; Becker, Fernandes, and Weichselbaumer 2019; Petit 2007). There are, however, some studies that did not find discrimination against mothers (e.g. Bygren, Erlandsson, and Gähler 2017; Horvath 2020). To date, there is no evidence of pro-mother discrimination. Magnitudes of discrimination against mothers can be substantial. For instance, in India, female applicants who were mothers were 20 percentage points (57 per cent) less likely to receive a callback for their job application (Bedi, Majilla, and Rieger 2022).

MENA and Egyptian context

The 2014 Egyptian constitution promises non-discrimination and equal opportunities for men and women in a number of areas, including employment (UN Women 2022). As of the 2003 labour law, women were entitled to non-discrimination in employment (World Bank 2022). Women are not, however, legally entitled to equal pay (World Bank 2022). Historically, the labour law excluded women from certain occupations. However, with law no. 43 of 2021, the only occupation forbidden to women was mining and quarrying (Ministry of Manpower (Egypt) 2021). Additionally, women who were pregnant or breastfeeding were forbidden from jobs with

chemical, physical or biological hazards (Ministry of Manpower (Egypt) 2021).

Despite rising educational attainment, employment of women has been falling over time in MENA generally and Egypt specifically (Assaad et al. 2020; Krafft, Assaad, and Keo 2022). A strong male breadwinner/female homemaker norm shapes gendered labour supply and demand (Hoodfar 1997; El-Feki, Heilman, and Barker 2017). The MENA region has the world's largest gender disparity in care work (International Labour Organization 2018). Gender norms are such that 85 per cent of women and 98 per cent of men said "changing diapers, giving baths to children, and feeding children should all be the mother's responsibility" (El-Feki, Heilman, and Barker 2017, 47). Norms also prioritize men's employment; more than 80 per cent of men and women agreed that when jobs are scarce, men should have more of a right to employment than women (Keo, Krafft, and Fedi 2022).

Employment is a pre-requisite to marriage for men, but women may never work and if they do, often leave work at marriage (Assaad, Krafft, and Selwaness 2022; Krafft and Assaad 2020). Both supply and demand side challenges for women's, and especially married women's employment are particularly acute in the private sector (Assaad, Krafft, and Selwaness 2022; Barsoum 2010, 2004). Wage work in the private sector, which is rare even for single women, is halved as women marry (Assaad, Krafft, and Selwaness 2022; Krafft, Assaad, and Keo 2022). The relative roles of supply- and demand-side factors, particularly employer discrimination, in married women's exit are unknown.

There are three other correspondence field experiments assessing employer's gender discrimination, as of 2022, in MENA. Two correspondence studies were in Turkey, applying to jobs in Istanbul (the capitol) using an online job platform (Balkan and Cilasun 2019, 2018). Resumes were for college graduates aged 22-23. The studies did not find discrimination against women, and even some potential favouritism for female sub-groups (Balkan and Cilasun 2019, 2018). Another

labour market correspondence field experiment looking at gender discrimination in MENA took place in Tunisia (Alaref et al. 2020). The study randomized gender for university graduates and entry-level job postings in the Greater Tunis (the capitol) region for 14 occupations in four fields (engineering, finance/economics, information technology (IT), and marketing). The study applied to jobs listed on Tunisia's two largest jobs platforms. The study found positive discrimination – in favour of women – although there was substantial heterogeneity by field, with some fields having discrimination in favour of women and other fields in favour of men. Because marital status is not typically listed on resumes in Tunisia, it was not studied (Alaref et al. 2020).

A recent experiment looked at gender discrimination among employers in Egypt (Osman, Speer, and Weaver 2021). The study both asked employers directly and used list experiments to elicit gender discrimination among 1,180 establishments in the hotel, restaurant, retail, and IT sectors. Half (51 per cent) of employers admit they prefer hiring men over women, with a similar share in the list experiment. Discriminating employers do not take more time to hire, but do pay productivity costs for their discrimination (Osman, Speer, and Weaver 2021). Although the study suggests that there is substantial gender discrimination in Egypt's labour market, the magnitude of discrimination facing applicants and how gender discrimination interacts with marital status has not been previously assessed in Egypt or elsewhere in MENA.

► Data and methods

This paper reports the results of a field experiment – a correspondence study – randomizing applicant gender and marital status in Egypt. A J-PAL MENA research team undertook data collection. The team

included four research assistants, two men and two women. Online job postings were randomly sampled, with details (including gender and marital status requirements) recorded. Resumes with characteristics corresponding to the ad, along with random gender and marital status, were sent to employers. Data were collected on employer callbacks. These outcomes are used to estimate discrimination by gender and marital status.

Data collection proceeded in two batches,¹ the first from June 7, 2022, to October 5, 2022, and the second from December 8, 2022, to February 1, 2023. In the first batch, information on all job postings was collected, to be able to characterize the universe of online job postings. In the second batch, job posting details were only collected for those positions that were in our application universe, to maximize the number of applications submitted and the experiment's power.

Job postings

The research team sampled 13 different online job platforms that included (often exclusively) jobs in Egypt. Research assistants were responsible for a particular platform or platforms. They were given a sampling rate for that platform based on the number of positions posted daily. In some cases, the sampling rate was 100 per cent (for sites with fewer postings), and in other cases 40, 30, 10, or 5 per cent. For cases where research assistants took a sub-sample, positions were randomly selected. A research manager oversaw the process and de-duplicated postings, so that if a position was listed on more than one platform, it was entered into our job posting database only once.

Research assistants recorded a number of characteristics of each posting,² including: the number of workers required; age requirements (minimum and maximum, if any); education requirements, in terms of degree level either listed or best fitting the position, as well as specialization

¹ The two batches were due to the logistics of funding.

² Posting characteristics were recorded for all batch 1 and postings meeting inclusion criteria, discussed below, for submitting resumes in batch 2.

for jobs requiring secondary or higher education; firm industry (using ISIC 4.1 coding, down to the six digit level, sometimes not available); occupation (ISCO-08 coding, down to the six digit level); location in terms of administrative geography (first level = governorate and second level = qism/markaz); wage (if listed, minimum and maximum of the range given); specific skills from a pre-populated checklist (technical, literacy, mathematics/statistics, physical fitness, computer, management, customer service, foreign language skills); soft and technical skills required as open-ended fields; workshops and courses required as open-ended fields; language skills and level required; requirement for a driver's license; military status requirement;³ and work experience requirement (in years, minimum, maximum of range if given).

Of particular relevance for this study, research assistants recorded postings' explicit gender and marital status requirements. Categories for gender requirements were male required, female required, male preferred, female preferred, or none specified. Likewise, research assistants recorded marital status in terms of single required, married required, single preferred, married preferred, none specified.

The research assistants also checked for a number of potential exclusion criteria for submitting resumes; data on positions were still recorded to analyse the universe of all postings in batch 1 but not for excluded positions in batch 2. Position data were excluded from submitting resumes for a number of reasons related to the universe we are considering: the position was in the public-sector or a state-owned enterprise (we are focused on the private sector); the position is a job working outside Egypt; the position is for non-Egyptians only; the position was a volunteer position (unpaid; paid internships are still included).

Positions were also excluded from resume submission for more pragmatic reasons related to the experiment design: if the position required more than five years of experience; if the position

was at the senior/executive level; or if the position had extremely specific technical requirements that the research team could not understand adequately to generate a fictitious resume. We also excluded positions that required a license or certification (e.g., medical license) to be provided as part of the application or that required the upload of documents other than a resume and/or cover letter (e.g., a writing sample) on pragmatic grounds.

Since, as we discuss below, we included photos on the resumes, we restricted positions with age requirements to include some part of ages 18-29 (e.g., ages 25-40 posting would be included, with age randomized between 25-29). We also excluded postings where the employer had no name or was confidential, as this would preclude identifying anything about the organization or matching a callback. Some job sites also required creating a profile; positions posted there we sought elsewhere or used the HR email, if available, but if neither of these were available, we excluded them from creating resumes. Although these are a number of exclusions, this set retains a substantially larger set of included postings than most previous studies from developing countries, which tend to focus on university graduates from specific fields, often only in the capitol region (Alaref et al. 2020; Balkan and Cilasun 2018, 2019; Zhang et al. 2021).

Table 5, in the appendix, details the number of positions entered (N=4,533). Of these, 38 per cent (N=1,114) met inclusion criteria. The rest were excluded, most commonly due to requiring more experience (19 per cent; multiple reasons possible), being senior (15 per cent) or too technical (12 per cent), or being on a website that requires a profile with the job not listed elsewhere (24 per cent). Additionally, primarily initially due to procurement difficulties obtaining the phones for callbacks, 404 positions expired before resumes could be submitted. There were therefore 710 postings included with resumes submitted, although we

³ Egypt has mandatory military service for men, and employers will typically check if this is completed before hiring men.

present descriptives on postings with the full universe from batch 1.

Comparisons to nationally representative data: The Egypt Labor Market Panel Survey

Online job postings are not representative of all the available jobs in developing countries. We draw on the Egypt Labor Market Panel Survey (ELMPS) 2018 wave as a point of comparison (Krafft, Assaad, and Rahman 2021; OAMDI 2019). Response categories for the job postings database were specifically designed with the same response categories as the ELMPS for a number of variables to facilitate this comparison. In the appendix (Table 6) we compare the ELMPS 2018 data (weighted) for private sector wage work to our job posting data from batch 1, although we note that the ELMPS is all current private sector wage jobs, and wage employment vacancies are of course distributed differently. Unfortunately, there are no nationally representative data on vacancies in Egypt.

Resumes

We generated up to four resumes (one single male; one single female; one married male; one married female) for each position. We did not generate resumes for identities that were excluded by the position requirements (i.e., if female required, male required, single required, or married required). We used Stata to randomly generate resumes as word documents with characteristics matching the position requirements.⁴

In order to have a manageable number of phones for the research assistants to answer by (fake) name, we used only sixteen first names. We selected eight common male and eight common female first names (no names that were common for both men and women). Common last names were also selected. Names were Muslim, reflecting

the majority religion in Egypt, and to avoid confounding religious with other discrimination. Names were selected to be free of socioeconomic status identifiers. Names were randomized onto resumes, by gender. Corresponding email addressed and phone numbers were provided.

Resumes included photos to increase the salience of gender at the application stage. Resumes in Egypt sometimes (but not universally) include photos. We used artificially generated (composite) photos from a publicly available website. Photos were matched across gender to the best of the research team's ability in terms of perceived skin tone, perceived age (plausibly 18-29), and perceived attractiveness. Photos had neutral background and avoided any markers of socioeconomic status as much as possible (e.g., in hairstyle or clothes). Women were shown wearing the hijab (photoshopped onto the generated pictures), since 95 per cent of women aged 15-29 in Egypt wear the hijab (Population Council 2011). Within gender, photos were randomized in creating resumes.

A number of other characteristics matching the job ad were included in the resumes. We randomized age within the intersection of the position requirements, plausible age given education requirements, and ages 18-29. Nationality was always listed as Egyptian, and the governorate and kism/markaz of residence were given to match those in the job ad. Military service was included only for men as done or exempted.⁵ The degree and specialization were per the position ad (or the research assistants' interpretation of the best fit, if no specific degree and specialization was listed) and the same across resumes, but the school/university was randomized among options matching the specialization and, if possible, in the governorate. The grade received in school was randomized across excellent, very good, and good per the distribution in the ELMPS 2018. Skills were included as per the ad, but in varying/random order. A driver's license was listed only if mentioned in the job ad. All of these items were

⁴Using the Stata command "putdocx."

⁵We had initially planned on including this only if listed in the position ad, but HRs were sensitive to this question, so we added it to all male resumes.

automated into the initial word version of the resume.

Research assistants then added experience corresponding to the position (and corresponding with the automatically generated education, age, dates, etc.) to the resumes. They generated sets of fictitious experiences which were randomized onto the identities. Fictitious experiences were saved for potential re-use (e.g., fake cashier experience could be reused in a future cashier posting and re-randomized across resumes). Resumes had formatting (randomly) applied and formatting/content tidied as needed before submitting. This design and process worked, overall, to try to match the job requirements and create variation in resumes (so they did not look identical) while still carefully randomizing gender and marital status relative to resumes. The resumes were then sent from corresponding email addresses and with specific phone numbers for the randomly generated identity, spaced out over the course of a few days.

Callbacks and outcomes

Callback data were collected via phone or email. Each research assistant was responsible for two physical phones with dual sim cards (four identities and names) matching their own gender identity. Email addresses were also created for each identity and regularly checked. When a callback occurred, details were collected on the nature of the callback. Callbacks (N=387) were categorized as: (1) scheduling an interview (N=272) (2) asking for additional information (N=55) (3) accepted without interview (N=0) (4) instant interview (N=12) (5) rejection (N=40) (6) not able to get reviewed (N=8).⁶

The primary outcome we construct from the callback data is a callback that signals the possibility of hiring (asking for an interview, interview on the spot, asking for additional information, offering the position).⁷ When a position was specifically

designated as for one gender or marital status only, the other excluded identities were considered not to have callbacks.

Estimates of discrimination

Gender and marital status discrimination could interact in a variety of complex ways. This paper tests specific hypotheses to assess different potential aspects of discrimination. Our first model estimates the degree of discrimination against women in the labour market for outcome y (callback signalling the possibility of hiring).

Using data on each job posting, j , and identity, i we estimate the following:

$$y_{ij} = \alpha + \beta \text{Female}_i + \varepsilon_{ij}$$

The coefficient β on the female dummy will test our hypothesis (H1) that there is discrimination against women in the labour market, on average.

Our second model includes a covariate for being married, along with an interaction between being married and being female. We thus estimate:

$$y_{ij} = \alpha + \beta_1 \text{Female}_i + \beta_2 \text{Married}_i + \beta_3 \text{Female}_i * \text{Married}_i + \varepsilon_{ij}$$

β_1 is the test for discrimination for single women versus single men. This paper hypothesizes (H2) there is discrimination against single women.

β_2 is the test for discrimination for married men versus single men. This paper hypothesizes (H3) there will be a preference for married over single men.

$\beta_2 + \beta_3$ is the test for whether there is differential discrimination for single women versus married women. This paper hypothesizes (H4) that there will be additional discrimination against married women.

$\beta_1 + \beta_3$ is the test for whether there is discrimination for married women versus married men. This

⁶ Not able to get reviewed usually was a request to apply via a profile website.

⁷ We had originally planned to also consider wages as well, but only 252 of the postings we applied to had wages listed in the posting, so we did not undertake these analyses.

paper hypothesizes (H5) that there will be additional discrimination against married women.

The analyses use ordinary least squares regressions. Standard errors are clustered at the level of the job (posting). Tests adopt a critical level of 5 per cent for statistical significance. All descriptive and multivariate estimates are weighted by the number of workers required for the posting and the inverse of the sampling rate for the posting website. Analyses follow what was laid out in our registered pre-analysis plan,⁸ unless otherwise footnoted.

Analyses also estimate heterogeneity in the callback outcome by a number of key characteristics. We specifically re-estimate our two main models for subgroups based on:

- Occupation (professional/managerial versus other)⁹
- Industry (services vs. other)¹⁰
- Skills required (whether the position requires technical, mathematics/statistics, computer, management, customer service, foreign language, or none of these skills).¹¹ Note that skills categories are not mutually exclusive.

► Results

Characterizing job postings

Comparing online job postings (for the universe of postings, in batch 1) to the nationally representative ELMPS 2018 data (for private sector wage work) highlights that online job postings are a selected segment of Egypt's labour market (Table 6). The universe of online job postings vastly and significantly over-represented professionals (57 per cent, versus 8 per cent in the ELMPS) as well as managers (9 per cent versus 2 per cent in the

ELMPS). Significantly fewer agricultural workers (less than 1 per cent, versus 17 per cent in ELMPS) and craft workers (less than 1 per cent versus 28 per cent in ELMPS) were included. Importantly, these two largely excluded occupations are male dominated in Egypt. In terms of economic activity, agriculture was again significantly under-represented, along with construction work, while the ICT, professional, and administrative sectors were significantly over-represented. For example, 23 per cent of online postings were in the ICT industry, compared to 1 per cent of jobs in the ELMPS.

Almost all the online job postings required a bachelor's degree (91 per cent) compared to 11 per cent in the ELMPS. Almost no online job postings required no education, compared to 65 per cent in the ELMPS. Comparing workers' self-reported skills requirements in the ELMPS to skills mentioned in the job postings, significantly fewer required literacy, math, or physical skills. However, these skills may be implied (e.g., the posting does not spell out literacy but requires Microsoft Office skills). Significantly more required computer skills, 40 per cent, versus 13 per cent in the ELMPS. The highly educated and highly professional nature of the online job posting universe must be kept in mind when interpreting the results.

Table 7 further characterizes position requirements from the online job postings (based on details collected in batch 1). Around a fifth (22 per cent) had age requirements, with an average minimum of 23 years and an average maximum of 35 years. The modal job did not require any experience (30 per cent), but 10 per cent of jobs required five years of experience and 10 per cent more than five years. Only 5 per cent required a driver's license. We further calculated the 10 most common words¹² in the open-ended technical and soft skills questions. "Communication" was the most common, followed by "management," "Microsoft," "office," "team," "analytical," "written," "solving," "design," and "software." Skill requirements thus generally

⁸ Registered as AEARCTR-0009534 on the American Economic Association Randomized Controlled Trials Registry.

⁹ We had originally planned white-collar versus blue collar, but there was not an adequate sample of blue-collar jobs.

¹⁰ We had originally planned a number of industries, but given limited sample size, focused on services vs. other.

¹¹ Since no jobs required physical skills and only 20 literacy, we do not analyze those skills. We had also planned to undertake heterogeneity analysis by education required, but since higher education was required for almost all jobs, we eschewed this analysis.

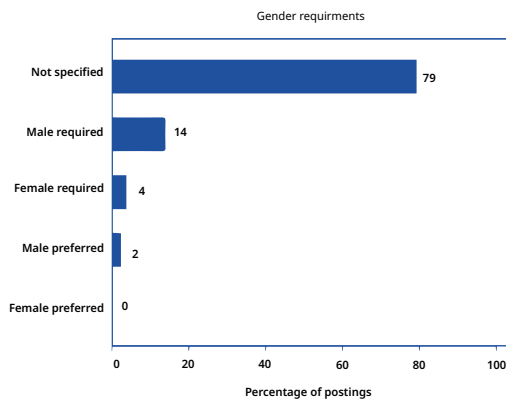
¹² Using the Stata command wordfreq. We excluded words shorter than four characters and dropped words that are part of common grammar (e.g., "that" or "over").

emphasized soft skills, along with computer and analytical skills, consistent with the professional nature of the postings sample.

Job postings by gender and marital status requirements

In Egypt, job postings on some platforms listed positions as for men, women, or both/not specified. These requirements are initial evidence of discrimination. Figure 1 shows, for the batch 1 sample of job postings, the gender requirements. Almost none (N=5, less than 1 per cent) had a required marital status, all single.¹³ Gender requirements were more common. While 79 per cent of postings did not specify gender, 14 per cent listed male required, and 2 per cent male preferred. Only 4 per cent listed female required and less than 1 per cent female preferred.

► Figure 1. Gender requirements of job postings (percentage)



Source: Author’s calculation based on job posting data (batch 1). Observation is a posting.

In the appendix, Table 8 presents the ten most common detailed occupations and detailed industries in the job postings data (batch 1) and the percentage of jobs requiring men or women in each. The results illustrate potential labour market segmentation. For a number of occupations, including the two most common occupations, software developer (8 per cent of postings) and sales professionals (7 per cent of postings) there were few gender requirements. However, security

guards were almost all required to be male (98 per cent male required, 3 per cent of postings), along with the majority of “other” sales service workers (54 per cent male required, 3 per cent of postings). Certain industries likewise tended to require men, particularly “other” manufacturing (4 per cent of postings, 77 per cent male required), along with “other” food service activities (2 per cent of postings, 84 per cent male required). None of the industries or occupations had a majority requiring women. The closest was other ancillary business support services (8 per cent of postings, 27 per cent female required).

Callbacks by gender and marital status

We turn now to callbacks that signal potential hiring, our key outcome. Overall, 11.2 per cent of the time there was a positive callback (Table 1). Callbacks rates were 12.0 per cent for men and 10.4 per cent for women. They were higher for single individuals (12.1 per cent) than married ones (10.3 per cent). Single men were the most likely to receive a callback (13.2 per cent), followed by single women (10.9 per cent), married men (10.7 per cent), and married women (9.8 per cent).

Table 1. Callback rates (percentage), by gender and marital status

	Single	Married	Total
Male	13.2	10.7	12.0
Female	10.9	9.8	10.4
Total	12.1	10.3	11.2

Source: Author’s calculation based on resume data and callback data.

Table 2 presents detailed callback outcomes among the positive responses. The most common positive callback was scheduling an interview (74 per cent), followed by asking for more information (20 per cent) while 6 per cent were instant interviews and there were no instant offers. Women (32 per cent), and particularly married women (37 per cent) were much more likely to be asked for additional information. This is suggestive of employers being potentially interested in hiring married women,

¹³ Since such marital status requirements were rare, we do not show their joint distribution with gender.

►Table 2. Detailed callback outcomes (percentage) if receive a positive callback, by gender and marital status

	Schedule interview	Ask for more info	Instant interview
Male married	82.0	11.3	6.7
Female married	60.8	37.0	2.2
Male single	83.3	8.3	8.5
Female single	66.4	27.0	6.6
Male total	82.7	9.6	7.7
Female total	63.8	31.7	4.5
Single total	75.7	16.7	7.6
Married total	71.9	23.6	4.5
Overall total	73.9	19.9	6.2

Source: Author's calculation based on resume data and callback data.

but also potentially dubious of their availability or ability to reconcile domestic responsibilities and employment.

Discrimination in employment

Table 3 presents the linear probability model for a callback outcome. Specification 1 tests for gender differences without considering marital status. Women have a lower (1.6 percentage point; 13 per cent) probability of a callback, but differences are not significant (counter to H1, we do not see discrimination against women). In specification 2, with female and married main effects and interactions, we test a number of hypotheses. First, for single women relative to single men, the main effect of female shows a 2.3 percentage point lower callback probability (17 per cent) for women but is insignificant (counter to H2). For the reference group (men) being married reduces the probability of a callback by 2.5 percentage points (19 per cent), but the difference is statistically insignificant. This result is counter to H3. Comparing the probability of callbacks for married versus single women, married women are 1.1 percentage points (10 per cent) less likely to be called back than single women, but this difference is insignificant (counter to H4). Married women are 0.9 percentage points less likely to be

Table 3. Linear probability model of callbacks

	Spec. 1	Spec. 2
Sex (male omit.)		
Female	-0.016 (0.032)	-0.023 (0.033)
Marital status (single omit.)		
Married		-0.025 (0.014)
Int. marital status and sex		
Female and married		0.014 (0.019)
Constant	0.120*** (0.032)	0.132*** (0.034)
N (Posting-identity)	2840	2840
N (postings)	710	710
R-sq.	0.001	0.002
H1 p-value	0.616	
H2 p-value		0.482
H3 p-value		0.078
H4 p-value		0.414
H5 p-value		0.791

Source: Author's calculation based on resume data and callback data

Notes: *p<0.05; **p<0.01; ***p<0.001. Standard errors, in parentheses, clustered by job posting. H1: tests for gender discrimination in Spec. 1. H2: tests for discrimination single women vs. single men H3: tests for discrimination single men vs. married men. H4: tests for discrimination single women vs. married women. H5: tests for discrimination married women vs. married men.

called back than married men (8 per cent less), but again, the difference is insignificant. This result runs counter to H5. Indeed, in general, we do not see statistically significant differences in callbacks by gender or marital status.

Heterogeneity in discrimination

The overall insignificant differences in callbacks by sex and marital status could mask substantial heterogeneity in discrimination across different types of jobs. In Table 4 we explore potential heterogeneity by occupation, industry, and skills required. Results are almost all insignificant, and given the number of tests being undertaken, the few significant results should be interpreted with caution. In the specification 1 model with only gender, women are significantly more likely (7.8 percentage points) to receive callbacks for jobs requiring customer service skills. There are significant negative coefficients on being married (main effect and thus testing H3 but finding the opposite sign) for jobs requiring technical skills and for jobs with one more skill required.

to be called back than men for jobs that required customer service skills.

The lack of discrimination against women that this paper finds is consistent with much of the global literature (Lippens, Verrmeiren, and Baert 2021), as well as other correspondence studies in MENA (Alaref et al. 2020; Balkan and Cilasun 2018, 2019). There are fewer studies on gender and marital status or motherhood and those are mostly in developed countries (Bertrand and Duflo 2017; Lippens, Verrmeiren, and Baert 2021). Our findings contrast with other studies demonstrating that married women and mothers are often discriminated against in the labor market (Arceo-Gomez and Campos-Vazquez 2014, 2019; Bedi, Majilla, and Rieger 2022; Bedi, Majilla, and Rieger 2018; González, Cortina, and Rodríguez 2019). The finding that there is not discrimination against married women in Egypt is consistent with the evidence that women tend to leave work in the private sector in advance of marriage (Selwaness and Krafft 2021), more so than at marriage. This suggests that women are anticipating the irreconcilability of employment and care work, rather than that employers fire or refuse to hire married women.

► Discussion and conclusions

Summary

This paper investigated discrimination by gender and marital status in the Egyptian labour market. The research focused on the (select) segment of online job postings, and randomized gender and marital status across resumes, tracking callbacks indicating potential hiring as the key outcome. Job postings more often listed a requirement for men (14 per cent) than women (4 per cent). However, in terms of callbacks, differences were small. Single men were the most likely to receive a positive callback (13.2 per cent), followed by single women (10.9 per cent), married men (10.7 per cent) and married women (9.8 per cent). In the multivariate models, differences were not statistically significant. There was not significant heterogeneity by occupation or industry, nor by most skills. Women were significantly more likely

to be called back than men for jobs that required customer service skills. It is also important to keep in mind that the absence of discrimination, on average, does not preclude gender discrimination in terms of specific occupations. Security guards may be male-stereotyped but business support services female-stereotyped, as we see in our results. Other studies likewise show gender stereotyping in job ads (Muradova and Seitz 2021) and that discrimination in favour of men and in favour of women can occur within different segments of the same labour market (Azmat and Petrongolo 2014).

Limitations

The results showing the absence of discrimination only apply to the specific universe we consider: online job postings. This universe is the same as for other similar studies (Alaref et al. 2020; Balkan and Cilasun 2019, 2018; Bedi, Majilla, and Rieger 2022; Bedi, Majilla, and Rieger 2018). However, this segment of online postings is very selected relative to Egypt's labour market, an issue for similar contexts as well. For instance, in the ELMPS 2018, only 9 per cent of the unemployed (who

Table 4. Heterogeneity of callbacks by occupation, industry, and skills required (linear probability model)

	Occupation		Industry		Technical skill		Mathematics/ statistics		Computer		Management		Customer Service		Foreign Language		None	
	Prof./ Manage	Not prof./ manage	Services	Not services	Not req.	Req.	Not req.	Req.	Not req.	Req.	Not req.	Req.	Not req.	Req.	Not req.	Req.	One+ skill required	None
Specification 1																		
Sex (male omit.)																		
Female	0.009 (0.019)	-0.053 (0.074)	0.021 (0.018)	-0.091 (0.085)	0.026 (0.020)	-0.092 (0.077)	-0.018 (0.033)	0.051 (0.119)	-0.028 (0.045)	0.010 (0.020)	-0.011 (0.036)	-0.058 (0.059)	-0.044 (0.040)	0.078* (0.037)	-0.020 (0.034)	0.033 (0.024)	-0.022 (0.044)	-0.000 (0.018)
Constant	0.120*** (0.018)	0.120*** (0.076)	0.112*** (0.026)	0.135 (0.081)	0.103*** (0.025)	0.150* (0.074)	0.120*** (0.033)	0.119 (0.081)	0.133** (0.046)	0.091*** (0.024)	0.108** (0.035)	0.224*** (0.065)	0.114** (0.041)	0.141*** (0.028)	0.125*** (0.035)	0.048* (0.022)	0.148*** (0.038)	0.045 (0.026)
N (Posting- identity)	2072	768	1864	976	1392	1448	2732	108	1388	1452	2436	404	2340	500	2588	252	2392	448
N (Postings)	518	192	466	244	348	362	683	27	347	363	609	101	585	125	647	63	598	112
R-sq.	0.000	0.008	0.001	0.026	0.002	0.023	0.001	0.005	0.002	0.000	0.005	0.005	0.006	0.010	0.001	0.005	0.001	0.000
H1 p-value	0.640	0.473	0.236	0.285	0.190	0.232	0.578	0.675	0.541	0.602	0.752	0.330	0.267	0.035	0.569	0.167	0.612	0.990
Specification 2																		
Sex (male omit.)																		
Female	0.008 (0.023)	-0.070 (0.074)	0.018 (0.021)	-0.107 (0.084)	0.022 (0.023)	-0.104 (0.077)	-0.025 (0.034)	0.028 (0.151)	-0.039 (0.046)	0.013 (0.025)	-0.018 (0.037)	-0.065 (0.060)	-0.049 (0.040)	0.061 (0.047)	-0.031 (0.035)	0.085 (0.044)	-0.034 (0.044)	0.007 (0.020)
Marital status (single omit.)																		
Married	-0.025 (0.021)	-0.025 (0.018)	-0.032 (0.021)	-0.012 (0.012)	-0.023 (0.021)	-0.030* (0.012)	-0.026 (0.015)	0.000 (0.054)	-0.028 (0.020)	-0.019 (0.014)	-0.018 (0.015)	-0.088 (0.048)	-0.015 (0.012)	-0.060 (0.046)	-0.029 (0.015)	0.037 (0.031)	-0.037* (0.017)	0.007 (0.021)
Int. marital status and sex																		
Female & married	0.002 (0.028)	0.033 (0.023)	0.006 (0.027)	0.031 (0.018)	0.009 (0.026)	0.024 (0.026)	0.013 (0.019)	0.046 (0.119)	0.023 (0.023)	-0.005 (0.033)	0.014 (0.018)	0.014 (0.087)	0.008 (0.018)	0.035 (0.056)	0.022 (0.020)	-0.104 (0.070)	0.025 (0.024)	-0.014 (0.025)
Constant	0.133*** (0.022)	0.132 (0.078)	0.128*** (0.031)	0.141 (0.081)	0.115*** (0.029)	0.164* (0.074)	0.133*** (0.035)	0.119 (0.087)	0.146** (0.048)	0.100*** (0.026)	0.117** (0.036)	0.267*** (0.072)	0.121** (0.042)	0.171*** (0.041)	0.140*** (0.037)	0.030 (0.018)	0.166*** (0.039)	0.042 (0.027)
N (Posting- identity)	2072	768	1864	976	1392	1448	2732	108	1388	1452	2436	404	2340	500	2588	252	2392	448
N (postings)	518	192	466	244	348	362	683	27	347	363	609	101	585	125	647	63	598	112
R-sq.	0.002	0.009	0.003	0.026	0.003	0.024	0.002	0.007	0.003	0.002	0.001	0.016	0.006	0.014	0.002	0.017	0.003	0.000
H2 p-value	0.732	0.350	0.397	0.207	0.335	0.175	0.460	0.857	0.398	0.616	0.614	0.284	0.231	0.197	0.382	0.059	0.438	0.741
H3 p-value	0.220	0.161	0.126	0.322	0.282	0.018	0.076	1.000	0.156	0.178	0.225	0.074	0.224	0.189	0.053	0.234	0.034	0.758
H4 p-value	0.224	0.623	0.183	0.180	0.427	0.795	0.342	0.619	0.724	0.376	0.777	0.298	0.611	0.517	0.613	0.174	0.474	0.669
H5 p-value	0.681	0.627	0.300	0.384	0.216	0.315	0.736	0.525	0.729	0.762	0.911	0.549	0.332	0.037	0.818	0.647	0.831	0.766

Source: Author's calculation based on job posting, resume data, and callback data

Notes: *p<0.05; **p<0.01; ***p<0.001. Standard errors, in parentheses, clustered by job posting. H1: tests for gender discrimination in Spec. 1. H2: tests for discrimination single women vs. single men H3: tests for discrimination single men vs. married men. H4: tests for discrimination single women vs. married women. H5: tests for discrimination married women vs. married men.

are themselves a select group (Assaad and Krafft 2016; Krafft and Assaad 2014)) had a LinkedIn or other online profile for employers. Online postings almost exclusively required higher education, were strongly skewed to managerial and professional jobs, and over-represented certain industries such as ICT. The results should thus be interpreted only in terms of this universe; there is not substantial discrimination against women or married women among employers who post jobs online.

Other segments of the labour market may still engage in different patterns of discrimination. Indeed, results from an employer experiment in Egypt that examined retail, IT, hotels, and restaurant employers, found IT had the least discrimination against women (Osman, Speer, and Weaver 2021). Larger employers (who are also presumably more likely to post online) were also less likely to discriminate in this same study. Future research should explore a wider universe of jobs than online job postings (or revisit this universe as online postings become more common).

The analyses also focus on a somewhat selected segment of online job postings, primarily those for new entrants. The universe is broader than past studies from the region, which focused on particular occupations, education levels, even narrower age ranges, and the capital (Alaref et al. 2020; Balkan and Cilasun 2019, 2018). However, results are still not generalizable outside the segment we consider. The Egyptian labour market is not dynamic (Yassine 2015), so discrimination for new entrants is quite important, but discrimination may vary by age and for more experienced workers. Discrimination may also be different in the public sector, which employs nearly half of women who work in Egypt, and is the preferred sector of employment for women (Assaad, AlSharawy, and Salemi 2022; Barsoum and Abdalla 2022).

Although the study sent a substantial number of applications (N=2,676), the number of postings was limited (N=710). We therefore may have power to detect only large differences by marital status and gender in callbacks. The heterogeneity analyses may also be underpowered. Our results also do not generalize to later stages of the hiring process. In particular, there may be differential discrimination at the hire stage then at the callback stage, as well as in wage-setting and promotion. Women and especially married women may face particular

scrutiny at the hiring stage, as suggested by the higher rate of callbacks asking for more information of women and especially married women. Employers may be concerned about married women's ability to reconcile employment with care responsibilities. This challenge could be addressed by policy and information; signalling child care was found to substantially reduce but not eliminate discrimination against mothers in an experiment India (Bedi, Majilla, and Rieger 2022).

Policy implications

While the analyses did not find significant or substantial gender discrimination in callbacks, there was a clear gender preference for men in postings. The substantial gender discrimination at the job posting stage is, technically, illegal in Egypt, as the labour law guarantees gender equality in employment (World Bank 2022). Potentially, the government could more vigorously enforce this law and require job sites and employers to remove gender requirements from the job posting stage. However, as the discrimination literature underscores, removing information can actually backfire and increase disparities in the labour market (Agan and Starr 2018; Doleac and Hansen 2020). As well as gender discrimination in postings, postings show age discrimination that needs to be addressed.

The results point towards supply-side challenges as key to women's low and unequal employment, at least in the segment of the labour market covered by online job postings. If employers in these firms are not discriminating against women, lower employment rates are due to women being less likely to apply for or remain in such jobs. Discriminatory gender norms in society and their households, particularly unequal care work responsibilities (Assaad, Krafft, and Selwaness 2022; Keo, Krafft, and Fedi 2022; El-Feki, Heilman, and Barker 2017), therefore appear to be the key constraints on such women's employment.

Policies that recognize, reduce, and redistribute care work are much needed (Economic Research Forum and UN Women 2020). However, policy design is critically important. Married Egyptian women with young children who were offered child care subsidies rarely took them up or worked; concerns with the quality of care may have limited

use (Caria et al. 2022). Similarly, an effort to expand pre-primary education and increase FLFP in Algeria appears to have backfired, actually reducing FLFP, potentially due to the short (half-days) of care offered (Krafft and Lassassi 2020). Women's employment globally, in MENA, and in Egypt remains deeply constrained. Policies that address just one constraint may also be ineffective; it may be necessary to address multiple constraints at once, for instance, addressing gender norms around care work in conjunction with the quality and availability of child care (Caria et al. 2022).

► References

- Agan, Amanda, and Sonja Starr. 2018. Ban the Box, Criminal Records, and Racial Discrimination: A Field Experiment. *The Quarterly Journal of Economics* 133 (1): 191–235.
- Alaref, Jumana, Samira Nikaein Towfighian, Gustavo Nicolas Paez, and Mohamed Audah. 2020. Tunisia Labor Market Field Experiment Paper. World Bank.
- Angelov, Nikolay, Per Johansson, and Erica Lindahl. 2016. Parenthood and the Gender Gap in Pay. *Journal of Labor Economics* 34 (3): 545–579.
- Arceo-Gomez, Eva O., and Raymundo M. Campos-Vazquez. 2014. Race and Marriage in the Labor Market: A Discrimination Correspondence Study in a Developing Country. *The American Economic Review* 104 (5): 376–380.
- . 2019. Double Discrimination: Is Discrimination in Job Ads Accompanied by Discrimination in Callbacks?. *Journal of Economics, Race, and Policy* 2 (4): 257–268.
- Assaad, Ragui, Abdelaziz AlSharawy, and Colette Salemi. 2022. Is The Egyptian Economy Creating Good Jobs? Job Creation and Economic Vulnerability from 1998 to 2018. In *The Egyptian Labor Market: A Focus on Gender and Vulnerability*, edited by Caroline Krafft and Ragui Assaad. Oxford, UK: Oxford University Press.
- Assaad, Ragui, Rana Hendy, Moundir Lassassi, and Shaimaa Yassin. 2020. Explaining the MENA Paradox: Rising Educational Attainment, Yet Stagnant Female Labor Force Participation. *Demographic Research* 43 (28): 817–850.
- Assaad, Ragui, and Caroline Krafft. 2016. Labor Market Dynamics and Youth Unemployment in the Middle East and North Africa: Evidence from Egypt, Jordan and Tunisia. *Economic Research Forum Working Paper Series No. 993*. Cairo, Egypt.
- Assaad, Ragui, Caroline Krafft, and Irene Selwaness. 2022. The Impact of Marriage on Women's Employment in The Middle East and North Africa. *Feminist Economics* 28 (2): 247–279.
- Attanasio, Orazio, Hamish Low, and Virginia Sánchez-Marcos. 2008. Explaining Changes in Female Labor Supply in a Life-Cycle Model. *The American Economic Review* 98 (4): 1517–1552.
- Azmat, Ghazala, and Barbara Petrongolo. 2014. Gender and the Labor Market: What Have We Learned from Field and Lab Experiments?. *Labour Economics* 30: 32–40.
- Baert, Stijn. 2014. Career Lesbians: Getting Hired for Not Having Kids?. *Industrial Relations Journal* 45 (6): 543–561.
- Balkan, Binnur, and Seyit Mumin Cilasun. 2018. Does Gender Discrimination Contribute to Low Labor Force Participation of Women in Turkey? Evidence from Survey and Field Data. *Economic Research Forum Working Paper Series No. 1205*. Cairo, Egypt.
- . 2019. Gender Discrimination Among College Graduates - Evidence From a Developing Country. *Economic Research Forum Working Paper Series No. 1373*. Cairo, Egypt.
- Barsoum, G. 2010. When There Is “No Respect” at Work: Job Quality Issues for Females in Egypt's Private Sector. *OIDA International Journal of Sustainable Development* 1 (1): 67–80.
- Barsoum, Ghada. 2004. *The Employment Crisis of Female Graduates in Egypt: An Ethnographic Account*. Cairo, Egypt: American University in Cairo Press.
- Barsoum, Ghada, and Dina Abdalla. 2022. Still the Employer of Choice: Evolution of Public Sector Employment in Egypt. In *The Egyptian Labor Market: A Focus on Gender and Vulnerability*, edited by Caroline Krafft and Ragui Assaad, 156–173. Oxford, UK: Oxford University Press.
- Becker, Sascha O., Ana Fernandes, and D. Weichselbaumer. 2019. Discrimination in Hiring

- Based on Potential and Realized Fertility: Evidence from a Large-Scale Field Experiment. *Labour Economics* 59: 139–152.
- Bedi, Arjun, Tanmoy Majilla, and Matthias Rieger. 2022. Does Signaling Childcare Support on Job Applications Reduce the Motherhood Penalty?. *Review of Economics of the Household* 20 (2): 373–387.
- Bedi, Arjun, Tanmoy Majilla, and Matthias Rieger. 2018. Gender Norms and the Motherhood Penalty: Experimental Evidence from India. IZA Discussion Paper Series No. 11360.
- Bertrand, Marianne, and Esther Duflo. 2017. Field Experiments on Discrimination. In *Handbook of Economic Field Experiments*, edited by Abhijit V. Banerjee and Esther Duflo, 1:309–393. North-Holland.
- Bloom, David E., David Canning, Günther Fink, and Jocelyn E. Finlay. 2009. Fertility, Female Labor Force Participation, and the Demographic Dividend. *Journal of Economic Growth* 14 (2): 79–101.
- Bursztyjn, Leonardo, Alessandra L. Gonzalez, and David Yanagizawa-Drott. 2020. Misperceived Social Norms: Female Labor Force Participation in Saudi Arabia. *American Economic Review* 110 (11): 3522–3548.
- Bygren, Magnus, Anni Erlandsson, and Michael Gähler. 2017. Do Employers Prefer Fathers? Evidence from a Field Experiment Testing the Gender by Parenthood Interaction Effect on Callbacks to Job Applications. *European Sociological Review* 33 (3): 337–348.
- Caria, Stefano, Bruno Crepon, Hala ElBehairy, Noha Fadlalmawla, Caroline Krafft, AbdelRahman Nagy, Lili Mottaghi, Nahla Zeitoun, and Souraya El Assiouty. 2022. Child Care Subsidies, Employment Services and Women's Labor Market Outcomes in Egypt: First Midline Results. MNAGIL Policy Research Paper.
- Central Agency for Public Mobilization and Statistics (CAPMAS). 2021. Annual Bulletin Labour Force Survey 2021.
- Correll, Shelley J., Stephen Benard, and In Paik. 2007. Getting a Job: Is There a Motherhood Penalty?. *American Journal of Sociology* 112 (5): 1297–1338.
- Doleac, Jennifer L., and Benjamin Hansen. 2020. The Unintended Consequences of “Ban the Box”: Statistical Discrimination and Employment Outcomes When Criminal Histories Are Hidden. *Journal of Labor Economics* 38 (2): 321–374.
- Economic Research Forum, and UN Women. 2020. Progress of Women in the Arab States 2020: The Role of the Care Economy in Promoting Gender Equality. Cairo, Egypt: UN Women.
- El-Feki, Shereen, Brian Heilman, and Gary Barker, ed. 2017. *Understanding Masculinities: Results from the International Men and Gender Equality Survey (IMAGES) - Middle East and North Africa*. UN Women and Promundo-US.
- El-Kogali, Safaa El Tayeb, and Caroline Krafft, ed. 2020. *Expectations and Aspirations: A New Framework for Education in the Middle East and North Africa*. Washington, DC: World Bank.
- Gauri, Varun, Tasmia Rahman, and Iman Sen. 2019. Measuring Social Norms About Female Labor Force Participation in Jordan. World Bank Policy Research Working Paper Series No. 8916. Washington, DC.
- Glauber, Rebecca. 2018. Trends in the Motherhood Wage Penalty and Fatherhood Wage Premium for Low, Middle, and High Earners. *Demography* 55 (5): 1663–1680.
- Goldin, Claudia. 2006. The Quiet Revolution That Transformed Women's Employment, Education, and Family. *The American Economic Review* 96 (2): 1–21.
- González, M. Jose, Clara Cortina, and Jorge Rodríguez. 2019. The Role of Gender Stereotypes in Hiring: A Field Experiment. *European Sociological Review* 35 (2): 187–204.
- Hoodfar, Homa. 1997. *Between Marriage and the Market: Intimate Politics and Survival in Cairo*. Berkeley, CA: University of California Press.
- Horvath, Gergely. 2020. The Impact of Marital Status on Job Finding: A Field Experiment in the Chinese Labor Market. *The B.E. Journal of Economic Analysis & Policy* 20 (4): 20190364.
- ILO. 2022. *World Employment and Social Outlook: Trends 2022*. Geneva: International Labour Office.
- International Labour Organization. 2018. *Care Work and Care Jobs for the Future of Decent Work*. Geneva.
- Jayachandran, Seema. 2021. Social Norms as a Barrier to Women's Employment in Developing Countries. *IMF Economic Review* 69: 576–595.
- Keo, Caitlyn, Caroline Krafft, and Luca Fedi. 2022. Rural Women in Egypt: Opportunities and Vulnerabilities. In *The Egyptian Labor Market: A Focus on Gender and Vulnerability*, edited by Caroline Krafft and Ragui Assaad, 225–256. Oxford, UK: Oxford University Press.
- Kleven, Henrik, Camille Landais, Johanna Posch, Andreas Steinhauer, and Josef Zweimüller. 2019.

- Child Penalties across Countries: Evidence and Explanations. *AEA Papers and Proceedings* 109: 122–126.
- Kleven, Henrik, Camille Landais, and Jakob Egholt Søgaard. 2019. Children and Gender Inequality: Evidence from Denmark. *American Economic Journal: Applied Economics* 11 (4): 181–209.
- Kline, Patrick M., Evan K. Rose, and Christopher R. Walters. 2021. Systemic Discrimination among Large U.S. Employers. NBER Working Paper Series No. 29053. Cambridge, MA.
- Krafft, Caroline, and Ragui Assaad. 2014. Why the Unemployment Rate Is a Misleading Indicator of Labor Market Health in Egypt. *Economic Research Forum Policy Perspective* No. 14. Cairo, Egypt.
- . 2020. Employment's Role in Enabling and Constraining Marriage in the Middle East and North Africa. *Demography* 57: 2297–2325.
- Krafft, Caroline, Ragui Assaad, and Caitlyn Keo. 2022. The Evolution of Labor Supply in Egypt, 1988–2018. In *The Egyptian Labor Market: A Focus on Gender and Vulnerability*, edited by Caroline Krafft and Ragui Assaad, 13–48. Oxford: Oxford University Press.
- Krafft, Caroline, Ragui Assaad, and Khandker Wahedur Rahman. 2021. Introducing the Egypt Labor Market Panel Survey 2018. *IZA Journal of Development and Migration* 12 (12): 1–40.
- Krafft, Caroline, and Moundir Lassassi. 2020. Public Preschool and Maternal Labor Supply in Algeria: Evidence from a Natural Experiment. In *ERF 26th Annual Conference*.
- Kübler, Dorothea, Julia Schmid, and Robert Stüber. 2018. Gender Discrimination in Hiring Across Occupations: A Nationally-Representative Vignette Study. *Labour Economics* 55: 215–229.
- Kuziemko, Ilyana, Jessica Pan, Jenny Shen, and Ebonya Washington. 2018. The Mommy Effect: Do Women Anticipate the Employment Effects of Motherhood?. NBER Working Paper Series No. 24740.
- Lippens, Louis, Siel Verrmeiren, and Stijn Baert. 2021. The State of Hiring Discrimination A Meta-Analysis of (Almost) All Recent Correspondence Experiments. *IZA Discussion Paper Series* No. 14966.
- López Bóo, Florencia, and Iva Trako. 2010. Labor Market Discrimination Based on Gender and the Place of Residence: A Randomized Experiment in Argentina. Mimeo.
- Maurer-Fazio, Margaret, and Sili Wang. 2018. Does Marital Status Affect How Firms Interpret Job Applicants' Un/Employment Histories? *IZA Discussion Paper Series* No. 11363. Bonn, Germany.
- Ministry of Manpower (Egypt). 2021. Resolution No. 43 of 2021. Egypt.
- Muradova, Sevilya, and William Seitz. 2021. Gender Discrimination in Hiring Evidence from an Audit Experiment in Uzbekistan. *World Bank Policy Research Paper Series* No. 9784.
- Neumark, David, Roy J. Bank, and Kyle D. Van Nort. 1996. Sex Discrimination in Restaurant Hiring: An Audit Study. *The Quarterly Journal of Economics* 111 (3): 915–941.
- OAMDI. 2019. Labor Market Panel Surveys (LMPS). Version 2.0 of Licensed Data Files; ELMPS 2018.
- Osman, Adam, Jamin D. Speer, and Andrew Weaver. 2021. Discrimination against Women in Hiring. Working Paper.
- Petit, Pascale. 2007. The Effects of Age and Family Constraints on Gender Hiring Discrimination: A Field Experiment in the French Financial Sector. *Labour Economics* 14 (3): 371–391.
- Population Council. 2011. Survey of Young People in Egypt: Final Report. Cairo, Egypt: Population Council.
- Schultz, T. Paul. 1997. Demand for Children in Low Income Countries. In *Handbook of Population and Family Economics*, edited by Mark R. Rosenzweig and Oded Stark, 1A:349–430. Elsevier Science B.V.
- Selwaness, Irene, and Caroline Krafft. 2021. The Dynamics of Family Formation and Women's Work: What Facilitates and Hinders Female Employment in the Middle East and North Africa? *Population Research and Policy Review* 40 (3): 533–587.
- Spierings, Niels. 2014. The Influence of Patriarchal Norms, Institutions, and Household Composition on Women's Employment in Twenty-Eight Muslim-Majority Countries. *Feminist Economics* 20 (4): 87–112.
- Spierings, Niels, Jeroen Smits, and Mieke Verloo. 2010. Micro- and Macrolevel Determinants of

- Women's Employment in Six Arab Countries. *Journal of Marriage and Family* 72 (5): 1391–1407.
- UN Women. 2022. Egypt Constitution of the Arab Republic of Egypt 2014, as Amended to 2019. Global Gender Equality Constitutional Database. Retrieved September 2, 2022. <https://constitutions.unwomen.org/en/countries/africa/egypt>.
- Verick, Sher. 2018. Female Labor Force Participation and Development. *IZA World of Labor* 87v2: 1–11.
- World Bank. 2022. Women Business and the Law 2022 - Egypt, Arab Rep.
- Yassine, Chaimaa. 2015. Job Accession, Separation and Mobility in the Egyptian Labor Market Over the Past Decade. In *The Egyptian Labor Market in an Era of Revolution*, edited by Ragui Assaad and Caroline Krafft, 218–240. Oxford, UK: Oxford University Press.
- Zhang, Jian, Songqing Jin, Tao Li, and Haigang Wang. 2021. Gender Discrimination in China: Experimental Evidence from the Job Market for College Graduates. *Journal of Comparative Economics* 49 (3). Elsevier Inc.: 819–835.
- Zhou, Xiangyi, Jie Zhang, and Xuetao Song. 2013. Gender Discrimination in Hiring: Evidence from 19,130 Resumes in China. MPRA Paper No. 43543.

► Appendix: Additional tables

►Table 5. Sample of job postings and exclusion criteria

Inclusion/exclusion (multiple exclusion possible)	Per cent	N (observations)
Included	37.5	1114
Public sector	0.4	11
Job outside Egypt	1.3	73
Job for non-Egyptians	0.1	7
Position is volunteer	0.5	15
Position req. 5+ yrs. exp.	19.1	1138
Position is senior level	14.7	909
Position too technical	12.3	472
Position does not include ages 18-29	1.4	89
Position req. license/certification	0.4	31
Position req. additional docs.	4.2	145
Position req. profile not elsewhere	24.1	1160
Position org. confidential	4.6	381
Among included, per cent expired		
Expired	53.5	404

Source: Author's calculation based on job posting data (batch 1 and batch 2). Observation is a job posting.

Notes: Multiple exclusion criteria are possible. Per cent expired among those included.

► Appendix: Additional tables

► Table 6. Characteristics of online job postings versus ELMPS 2018 private sector wage work

	Job postings Mean (SE)	ELMPS 2018 Mean (SE)	Difference & t-test (1)-(2)
Occupations			
Managers	0.091 (0.006)	0.015 (0.001)	0.077**
Professionals	0.566 (0.010)	0.077 (0.003)	0.489***
Technicians and associate professionals	0.123 (0.007)	0.045 (0.002)	0.077
Clerical support workers	0.090 (0.006)	0.036 (0.002)	0.054
Service and sales workers	0.095 (0.006)	0.180 (0.004)	-0.085
Skilled agricultural, forestry and fishery workers	0.000 (0.000)	0.165 (0.004)	-0.165*
Craft and related trades workers	0.003 (0.001)	0.281 (0.005)	-0.278**
Plant and machine operators, and assemblers	0.028 (0.003)	0.146 (0.004)	-0.119
Elementary occupations	0.003 (0.001)	0.053 (0.002)	-0.050
Industries			
Agriculture	0.001 (0.001)	0.165 (0.004)	-0.164*
Manufacturing and Mining	0.144 (0.007)	0.166 (0.004)	-0.022
Construction and utilities	0.045 (0.004)	0.220 (0.004)	-0.174*
Retail and wholesale	0.037 (0.004)	0.158 (0.004)	-0.121
Transport and storage	0.017 (0.003)	0.106 (0.003)	-0.089
Accommodation and food service	0.061 (0.005)	0.044 (0.002)	0.018
Information and communication	0.229 (0.009)	0.009 (0.001)	0.220***
Professional activities	0.161 (0.007)	0.026 (0.002)	0.135***

► Appendix: Additional tables

► Table 6. Characteristics of online job postings versus ELMPS 2018 private sector wage work (cont.)

	Job postings Mean (SE)	ELMPS 2018 Mean (SE)	Difference & t-test (1)-(2)
Administrative and support	0.180 (0.008)	0.015 (0.001)	0.165***
Education and Health	0.096 (0.006)	0.045 (0.002)	0.051
Other services	0.030 (0.003)	0.048 (0.002)	-0.018
Education requirements			
None/Undefined	0.006 (0.002)	0.650 (0.005)	-0.644***
Read & Write	0.009 (0.002)	0.100 (0.003)	-0.091
Secondary	0.072 (0.005)	0.136 (0.004)	-0.064
Bachelor	0.910 (0.006)	0.111 (0.003)	0.799***
Post-graduate	0.003 (0.001)	0.003 (0.001)	-0.000
Skills (multiple possible)			
Technical	0.352 (0.010)	0.288 (0.005)	0.064
Literacy	0.008 (0.002)	0.384 (0.005)	-0.376***
Mathematics/statistics	0.099 (0.006)	0.314 (0.005)	-0.215*
Physical fitness	0.002 (0.001)	0.545 (0.005)	-0.543***
Computer	0.396 (0.010)	0.130 (0.004)	0.266***
Management	0.128 (0.007)	0.112 (0.003)	0.016
Customer service	0.140 (0.007)	0.167 (0.004)	-0.026
Foreign language	0.123 (0.007)	0.071 (0.003)	0.053
N (Observations)	2420	8542	

Source: : Author's calculations based on job posting data and ELMPS 2018 data. Observation is a job posting (experiment, batch 1 only) or worker (ELMPS).

Notes: Standard errors in parentheses. *p<0.05; **p<0.01; ***p<0.001.

► Appendix: Additional tables

► Table 7. Details of position requirements

Has Age Requirement (%)	22.0
Mean age requirements (position has age requirement)	
Minimum Age	23.3
Maximum Age	35.4
Experience requirements (%)	
No Experience	30.4
1 Year Experience	19.7
2 Year Experience	13.4
3 Year Experience	12.4
4 Year Experience	3.8
5 Year Experience	10.1
More Than 5 Year Experience	10.2
Requires Driver's License (%)	4.9
Most Common Skill Words (% of Skill Words)	
Communication	3.1
Management	1.5
Microsoft	1.0
Office	0.9
Team	0.8
Analytical	0.8
Written	0.8
Solving	0.7
Design	0.7
Software	0.7

Source: Author's calculation based on job posting data (batch 1). Observation is a job posting.

► Appendix: Additional tables

► Table 8. Ten most common occupations and ten most common industries and percentage requiring male or female workers

	Per cent	N (Observations)	Per cent require male	Per cent require female
Occupations				
Software developer	7.6	188	0.0	0.0
Sales professionals	7.3	123	2.8	0.9
Other business service agents	5.1	16	23.6	0.0
Customer information call center clerk	4.6	77	4.4	2.5
General accountant	2.8	85	14.3	4.8
Security guard	2.7	9	97.7	0.0
Other sales service workers	2.5	38	54.0	0.7
Other equipment assemblers and installers	2.3	1	0.0	0.0
General administration specialist	2.0	30	3.3	0.0
Marketing specialist	2.0	42	5.2	3.4
Industries				
Other ancillary business support services	8.4	149	11.4	26.9
Human resources supply and management	7.4	131	5.7	0.2
Other activities of computer and information systems	6.8	119	4.3	0.0
Other information services activities	4.5	125	32.0	0.5
Other activities of other manufacturing industries	3.7	46	77.0	0.9
Information-based telephone services	3.4	1	0.0	0.0
Other computer software activities	2.1	48	0.0	0.0
Activities of real estate agencies and brokers	2.1	41	4.5	1.1
Other construction activities	2.1	81	13.6	4.4
Other activities for other food services	1.6	22	83.8	0.0

Source: : Author's calculation based on job posting data (batch 1). Observation is a job posting.

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