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ABSTRACT

A Tale of Parallel Processes of Gender (In-) Equality: How Big Is the Glass Ceilings for MENA Women?*

In all the MENA countries considered in this study, namely Jordan, Egypt and Tunisia, there has been a significant decrease in the female labor force participation rate over the last two decades. Moreover, existing analysis and the anecdotal evidence suggest that it may be problematic for women to reach a white-collar high skill job, also in the more protected public sector, though there is very little empirical evidence on this. By using repeated cross-sections of individuals covering periods of up to 20 years (for Egypt), we examine the evolution of the glass ceiling problem for women resorting to the matching approach, which, to our knowledge, has never been used in this field. Instead of looking at the gender gap along the wage distribution, we assess the probability to reach the top professions of manager, professional and technician or associate professional. We find a sizeable glass ceiling effect in all the countries considered. It is a persistent phenomenon across all the industrial sectors and the years considered. The present study sheds new light on the glass ceiling effect for woman in the MENA countries, which is relevant also for other countries.

JEL Classification: J16, J71, K38, O53, P52

Keywords: glass ceilings, woman employment, labor force, Egypt, Jordan, Tunisia

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* Acknowledgments, we thank the ERF for sharing and permitting us to use the household surveys of the countries considered. However, the responsibility for any opinion or errors found in this paper is of the authors only.

Introduction

The so-called glass ceiling is still an important issue for woman not only in advanced, but even more so in emerging market economies: it means that even if women increase their level of education and improve their position in the labor market, nonetheless, there is like a glass ceiling which allows them seeing but not reaching apical positions in the labor market and in the society more generally. In other words, there is some unseen barrier for them in occupying top positions within a given organization and in social and political life.

Interestingly, similar to several other developing countries of Africa and Asia, female labor force participation has been declining in MENA economies over the last years, as Assaad et al. (2018) emphasize. The female education attainment level is on the rise in the area, but female labor force participation rates have remained stagnant when they did not even further decline, like in Egypt. One reason is the contraction of the public sector, where mostly the educated women find their employment (Pastore, 2021). While the reasons of this stagnant or declining female labor force participation rate have been widely discussed (see Clark , 1991; Karshenas & Moghadam, 2001; Moghadam, 2004a; 2004b; Groh & Rotschild, 2012; Assaad, 2014; Assaad et al., 2018; Pastore, 2021), there is no study, instead, to document and examine the determinants of the glass ceiling effect women experience in the MENA Region.

Thus, we try to fill an important gap in the current literature, a gap that regards not only the MENA region, but also other developing and emerging market economies. In this study, in fact, we provide evidence of the extent to which women experience a glass ceiling in three much understudied economies: Egypt, Jordan and Tunisia (see World Bank, 2014). Several previous studies emphasize that societal rules, culture, traditional gender paradigm, and ethnic categories have an important effect on female labor participation rates in the MENA Region (see, among others, H'madoun, 2010; and Pastore and Liwinski, 2020). However, as Assaad et al. (2018) noticed, most of the studies examine the female labor participation rates in the MENA region by focusing on one single year, which only allows examining the level of the female labor participation rate, rather than its evolution over time. In the present study, we use three datasets one for each of the countries considered covering periods of time

of different length. The Egyptian dataset has separate cross-sections covering about 20 years (1998, 2006, 2012, and 2018). The Jordan dataset covers a 6 years period (from 2010 to 2016). The Tunisian dataset covers only the year 2014.

Moreover, to our knowledge, this is the first study which employs a propensity score matching approach for estimating the glass ceilings effect. We estimate the probability for women (target group) of reaching apical positions as compared to men (control group) and compare our findings over the years mentioned above for each country considered. The apical positions (our outcome variable) include: a) managers; b) professionals; c) technicians and associate professionals. We believe that, in so doing, we fill in an important lacuna in the current literature not only relative to MENA countries or the emerging market economies. We expect that new studies based on the same approach will cover other developing and more advanced economies therefore providing additional estimates to confirm our findings.

We find a sizeable glass ceiling effect in all the countries considered. It is a persistent phenomenon across all the industrial sectors and the years considered. We breakdown the analysis for the three main broad sectors of agriculture, manufacturing and services and for the state and private sector. We use the ILO (2017)'s sectoral classification to determine the main macro-sectors.

The present study is organized as follows. Section 2 reviews the current literature on glass ceiling for woman at work in developed and developing countries. In addition, Section 2 discusses the hypotheses we aim to test in the three aforementioned MENA countries. Section 3 regards data and methodology. In Section 4, we present our findings. In the concluding section, in addition to a summary of the main findings, we discuss limitations, policy suggestions, and recommendations for future research.

Literature and Hypothesis Development

Literature Review

In this section, we provide a short literature review of the glass ceiling issue in general and in the case of MENA countries.

b) *glass ceiling in the world*

As Zeng (2011) underlines, the expression "glass ceiling", which was originally coined by the Wall Street Journal in the 1970s (see Mattis, 2004; Moore, 1997; Stith, 1996), refers to the specific type of labor market disadvantage that woman and several ethnic minorities face in advancing to top positions in the organizational hierarchy. The glass ceiling problem was originally observed within corporations (Mattis, 2004; and, for a review, Jackson and O'Callaghan, 2009). At a later stage, Olson and Becker (1983), Maume (1999), James (2000), and Gjerde (2002) identified the existence of a glass ceiling in different aspects of the labor market as well as of the social and political life.

Arulampalam et al. (2007) examine the glass ceiling effect in terms of wage employment by estimating the gender gap along the wage distribution in a selection of EU countries. Their findings indicate that a glass ceiling exists in all the countries considered. They also find, by using quantile regression analyses, that both at the top and at the bottom of the wage distribution, there is a sizeable gender gap. The phenomenon when gender inequality regards the lower end of the wage distribution is called sticky floor, to mean that women tend to receive particularly lower wages then their male peers also in low skill occupations.

However, the authors find that the glass ceiling is more prevalent than the sticky floor in most of the countries. Most scholars emphasize glass ceiling as the most important one, in as much as it generates more sizeable gender inequality (see Zeng, 2011; Morgan, 1998; Baxter and Wright, 2000). Zeng (2011, p.314) underlines "the glass ceiling as a greater disadvantage in promotion to adjacent superior levels, as women ascend the corporate ladder".

After the study by Arulampalam et al. (2007), a number of other studies have documented the extent of the phenomena of glass ceiling and sticky floor in a number of advanced and developing countries (see, among others, Christofides et al., 2013; Plantenga and Remery, 2006; Albrecht et al., 2003 for the EU countries, Fitzpatrick, 2010 for the US economy, Kolesnikova and Liu, 2011; de la Rica et al., 2008 for Spain; Deshpande et al., 2018 for India; Chi and Li, 2008 for China; Fang and Sakellariou, 2011 for Thailand).

A glass ceiling problem is found in both public and private sector occupations within the EU and in many other advanced and developing economies (some of the studies are: Blau, and Kahn, 2016; Buser et al., 2014; Olivetti and Petrongolo, 2008; Booth and Nolen, 2009; Dell'Aringa et al., 2012;).
Schulpen (2017) emphasizes that many talented women have experienced the glass ceiling effect in their career after childbirth, and during the pregnancy period. The current literature documents the glass ceiling effect for women in different industrial sectors, like tourism (Campos-Soria, Marchante-Mera, & Ropero-García, 2011; Santos & Varejão, 2007; Guimarães & Silva, 2016; Santero-Sanchez et al., 2015) or medicine (Burbridge, 1994; Poorman, 2018; Carnes et al., 2008). A field work done by Wolfert et al. (2019) finds a glass ceiling effect among neurosurgeons in Europe. Neurosurgeon women feel that their chance of reaching better job conditions and promotions is lower than that of their male peers.

Quo and Zhao (2017) use the migrant's information and find that there is a glass ceiling effect for rural and urban female migrants in the Chinese economy in the period of 2002-2007, which generates wage inequality. Domínguez et al. (2019) underline the women who expatriate tend to re-generate an even more sizeable glass ceiling in other countries. They emphasize that a glass ceiling is often seen in developing countries and also among female expatriates who are working in India.

In addition, a glass ceiling effect is found also among female entrepreneurs. For instance, Agier and Szafarz (2013) find that women entrepreneurs have problems in accessing credit even if they have a better economic outlook than their male peers in micro financed small businesses in Brazil. Indeed, this is not a new finding in the current literature on gender biased loans (see Coleman, 2000; Fay & Williams, 1993; Haynes, 1999; Wilson, Carter, Tagg, Shaw, & Lam,2007).
A number of personality traits or non-cognitive skills have been considered in a growing body of literature as factors able to explain the lower position of women in the labor market relative to men (Blau and Kahn, 2017, section 4). More generally, a large literature tends to believe that men possess characteristics that are associated with occupying apical positions: men would place a higher value on money, have higher self-esteem, would be less risk averse, more competitive, self-confident and believe that they control better their fate than women (Blau and Kahn, 2017, p. 837). Other even more

contentious competitive advantages of men over women would consist of being more disposed to negotiate for better economic conditions. Moreover, women are seen as less likely to being competitive within the organization, which prevents them from advancement. These reasons are taken to explain why, as Blau and Kahn (2017, p. 828) report, based on Fortune 500 companies, although women are nearly half of managers, only 14.3% are executive officers, 3.8% are CEOs, and only 16.6% hold board seats.

A more recent strand of literature (see again Blau and Kahn, 2017) attempts to explain why women are slowly occupying an increasingly larger number of senior positions and several observers ask whether there is some competitive advantage that women have that might make them better managers and, therefore, have a positive impact on firms' performance. Some authors are considering social preferences by gender (see, among others, de Oliveira et al. 2014; and the surveys of the literature: Eagly and Johnson, 1990; Badura et al. 2018; and Offermann and Foley, 2020; and references therein). Extending the analysis to 73 developing countries observed over the years 2007-2010, Islam and Amin (2016) find that the share of female managers is higher in the firms of countries where women outperform men in terms of enrollment rates in all levels of education (primary, secondary and tertiary).

Olivetti and Petrongolo (2008) emphasize the non-randomness of selection to examine the glass ceiling effect, and it can have an effect on international comparisons. They referred to the selectivity-biases are a main issue for gender pay gaps.

b) the case of the MENA countries

The existing literature has well documented that the female labor participation rate for the MENA Region is very low and declining (see Clark , 1991; Groh & Rotschild, 2012; Moghadam, 2004a;2004b; Assaad et al., 2018; Assaad, 2014; Karshenas & Moghadam, 2001; Pastore, 2021), like that in several developing countries in Africa and Asia.

Only a few studies have examined the glass ceiling for the case of the MENA countries. Jamali et al. (2006) examine the glass ceiling effect for the female middle and top managers in 12 Lebanese banks. They find that the middle and top manager women in those banks do not satisfy their career aspirations. Kandil (2015) examines the glass ceiling effect by using a theoretical model which the author tested by using a maximum simulated likelihood model of promotion in Egypt by using a Labor

Market Survey in 2006. The author tries to find a sensible answer to the difference between hiring and promotion opportunities and outcomes of men and women in the Egyptian labor market. She finds that there is discrimination in hiring and promotion outcomes of men and women. In her theoretical dynamic model, she takes into account human-capital investment and quit rates. She also finds that the adversity of hiring exists especially in the private sector. Such adversity is lower in the public sector. However; once hired, women face unequal promotion opportunities even if they work in the public sector. In addition, the discrimination against women at the hiring stage is not relevant with the endowments in the Egyptian labor market according to her theoretical model.

Ghorbani and Tung (2007) find that glass ceiling is a valid interpretative hypothesis to explain the condition of women in Iran in interviews with 12 Iranian women.

Pastore (2021) find detailed evidence of the presence and extent of both a sticky floor and a glass ceiling in Egypt using the same data as this paper. He finds evidence of a strong sticky floor in the private sector (-75% of the male wage), whereas there is no evidence of sticky floor in the public sector, probably because of the implementation of the minimum wage legislation . However, there is no evidence of a glass ceiling in the private sector, although the gender gap remains quite high also at the top deciles of the wage distribution (about -25%). In the public sector, the gender gap is higher at the top deciles, showing some evidence of a glass ceiling: the gender gap increases in absolute value from about 10% for the bottom deciles, up to 25% for the top deciles. In both sectors, quantity effects tend to reduce and price effects tend to increase the gap. In particular, most of the difference is in the constant, rather than in the price of any given productivity characteristics. Overall, this suggests that much can be done to improve the GWG in favor of employed women by reducing the discriminating behavior of Egyptian employers, by implementing more consistently the gender equality legislation, which was adopted in Egypt only in the public sector, until recently.

All in all, the literature review shows that most of the previous studies look at the consequences of glass ceiling in terms of wages. Only recently, the literature has focused on accessing apical positions in developing countries, although none of the papers in the available literature does it adopting the matching approach and no study covers more than a year. We aim to contribute to this last stream of the literature.

Thus, our study contributes to the current literature by providing new empirical evidence on glass ceiling in 3 much neglected developing countries, where studies regarding gender differences are still in their infancy and very little is known regarding the glass ceiling phenomenon and its determinants. In addition, although based on cross-section data, our study analyzes its trend thanks to the long period of time covered by our data banks (from 4 to 20 years).

Data and Methodology

Datasets

Our datasets for both Jordan and Egypt were obtained from the Economic Research Forum (ERF). the datasets for Jordan and Egypt are repeated cross-sections, covering from 6 (Jordan) to about 20 years (Egypt). For Tunisia, we use the 2014 survey. The datasets consist of more than 10,000 individuals for the period of 1998-2018 for Egypt; more than 25,000 for Jordan in 2010 and 2016; and more than 16,000 for Tunisia.

Estimation Methodology

Unlike previous studies, we use the propensity score matching methodology (henceforth PSM). It is developed in 2 steps. Step one consists of estimating a probit model of the "probability to be a woman" (the target group), which is meant to identify the specific productivity characteristics of the sample of women. We use the following covariates: 7 educational qualifications (Illiterate, Read & Write, Basic Education, Secondary Education, Post-Secondary Education, University, Post-Graduate), potential work experience, marital status, 22 location dummies for Egypt, 12 for Jordan, 24 for Tunisia, one for each of the governorates in which the country is divided. Based on this estimate, a propensity score is predicted for men (the control group) using the same covariates. Matching of the control to the target group is obtained using the estimated propensity scores of the two groups and selecting the individuals with the closest propensity score, which means a control group with characteristics as much similar as possible to the target group. In fact, the PSM approach aims to provide a solution to the so-called "missing data problem". In other words, we would like to compare the probability of a woman to enter one of the above professions in one case and of not entering them in another case, like in the

physical sciences, but, in social sciences, this is, for obvious reasons, impossible. What we can do is comparing women with a sample of men selected as having exactly the same productivity characteristics as women.

At step two of the procedure, we estimate by probit the probability of the target group to reach one of the apical positions (our outcome variable) as compared to individuals in the control group, selected as owning the same characteristics, but gender. Compatible to the current literature on labor economics, we use the age threshold of 23 years old to select our sample of men and women (see Robinson, 2010; Kamburov and Manovskii, 2008). By using the ISCO classification, we determine the worker as a white-collar executive if the occupation of the worker is one of the following (see Breen and Karlsson, 2014; Sturgis and Sullivan, 2008; for the European countries, see Pavlopoulos, 2010):

- Manager
- Professional
- Technician & associate professional[1]

Then, we ask whether women have a higher/lower chance than men of accessing one of the above occupations.

In analytical terms, the PSM procedure can be described as follows. Let us start from step two, namely the model that expresses the outcome variable (Y), in our case a dummy of belonging to a given apical position, as a function of an indicator variable (G) and an error term (ε):

$$Y = \beta_1 G + \varepsilon \qquad [1]$$

where G takes the value one if woman and zero if man. At step one, we consider gender our treatment variable and try to identify the characteristics of women in the sample with the following model:

$$G^* = \sum_{i=1}^{6} \beta_i \, EQ_i + \beta_7 WE + \beta_8 MS + \sum_{j=9}^{31} \beta_j \, Gov_j + u \qquad [2]$$

where:

$$G = 1 if G^* > 0{,}0 \; otherwise$$

[1] İt would be interesting to study the probability to become a politician in the countries considered, but the data at hand does not contain information about this.

Equation [2] represents the first step and is estimated by probit. As noted above, the covariates in our case include: educational qualification (*EQ*), (potential) work experience (*WE*), marital status and the governorates the countries considered (*Gov*), which are 22 in the case of Egypt. We use nearest neighborhood (*NN*) matching in our PSM analysis for the matching estimator. This NN matching method matches individuals in the treatment group to an individual in the control group with the closest propensity score. The standard errors are computed using a bootstrapping method with 50 replications (see Lechner, 2002).

At step two, we estimate equation [1], namely the probability of becoming an executive worker for women (the target group) in comparison to a sample of men with the same characteristics (control group). The latter is selected in the sample using the propensity score computed on step one of the model: we select in our overall sample only those men who have the same or closest propensity score to that computed at step one. One shortcoming of this method is that it allows us controlling only for the observed and not for the unobserved characteristics, such as talent, skill and motivation at work.

The novel idea behind this estimation procedure is that the coefficient of the treatment variable (women) in accessing the given apical position (Y in equation [1]) gives what we define the coefficient as 'the relative glass ceiling effect', our estimated Average Treatment Effect on Treated (henceforth, ATeT) can be defined as follows:

$$E(Y_1 - Y_0 \,|\, D = 1) = E(Y_1 \,|\, D = 1) - E(Y_0 \,|\, D = 1) \qquad [3]$$

In our case, Y_1 is the treatment group (female workers) and Y_0 is the control group (male workers).

Our approach to estimate the glass ceiling effect can be counted as novel in the current literature. Existing studies measure the wage gap at the highest quantiles of the wage distribution and, therefore, generally use pooled quantile regressions and separate quantile regression methods (see Oaxaca, 1973; Blau and Kahn, 2006; Cho and Cho, 2011; Cho et al., 2014). For the matching, we prefer the common support condition. It ensures the individuals with same propensity scores have a positive probability of being both treated and non-treated, which is also known the overlap condition (see Heckman et al., 1999; Caliendo and Kopeinig, 2008). Moreover, we use the standard errors that are heteroscedasticity and autocorrelation robust no bootstrapping ones because differences were marginal and did not affect

significance levels. For the matching, when nearest neighborhood matching is not available due to the small number of observations, we use the mahalanobis matching instead of the nearest neighborhood matching.

Hypothesis Development

In the present study, we focus on three developing MENA countries featured by sizeable gender inequality. Table 1 gives the UNDP gender inequality index. Both Jordan (in 2017, the rank of HDI for Jordan was 102; for gender inequality the rank in 2018 was 113) and Egypt (in 2017, the rank of HDI for Egypt was 116; for gender inequality, the rank in 2018 was 102) are in the medium human developed country level in terms of gender inequality. Moreover, there is a negative trend in terms of gender inequality in all three countries (for Egypt, the growth rate of gender inequality index between 1995 and 2018 is -32%; -30% for Jordan). However, in the MENA countries, especially in Egypt, despite the labor market guarantee programs and employment promotion policies, the female labor participation rate is far below the expected level. In 2019, the female labor participation rate was only 17.9% in Jordan and only 23.8% in Egypt (see Assaad et al., 2012 for Jordan, Assaad, 2014 for Egypt). Based on these premises, the glass ceiling effect is expected to be sizeable in both countries. Nonetheless, one should also consider the strong selection into employment of the most educated, talented and motivated women, which might, on the other hand, reduce the glass ceiling effect. As Pastore (2021) reports, employed women in the public sector are much more educated than the non-employed and they are also more educated than employed men on average. The situation is reverted in the private sector.

<Insert Table 1 here>

The whole picture regarding female labor in Jordan is dramatic. As Kasoolu et al. (2019) emphasized, the degree of labor market inclusion of women was in the last percentile of the world distribution, also due to the high female unemployment rate (see Kalimat and Al-Talafha, 2011; Mryyan,2012). The World Bank Data (World Development Indicators, 2020) shows that the female labor force participation rate in Jordan is very low and stagnant over the years. As Assaad et al. (2012) emphasize, occupational opportunities have been meager for women in the country at least since the mid-1980s.

All this considered, estimating the extent and size of the glass ceiling problem for a woman at work in the MENA countries considered is topical in the academic and political agenda. As Kassolu et al. (2019) underline, the female labor force participation rate is uncorrelated with the business cycle and insensitive to expansion and recession periods, at least since the 1990s. Does this apply also to the glass ceiling? By looking at the size of the effect over 20 years period, it is possible to indirectly test this hypothesis.

As Assaad et al. (2012) emphasized, there is a clear link between gender inequality and the low female labor market participation rate in Jordan. Miles (2002) argues that social norms, family-level factors, the perception of managers in the private sector, and the state labor policies shape the female labor participation and female labor exclusion problem. After the female labor participation oriented economic policies implemented in the mid-1970s[2], especially for women, public sector employment has become the employment channel alternative to the private sector.[3] However, such job opportunities for women narrowed during the mid-1980s due to the sovereign debt crisis, and therefore, the job opportunities for educated women decreased (see Assaad et al., 2012).

The progress of human development in terms of gender equality requires that if there is a glass ceiling, positive actions be put in practice so as to allow also women to reach apical job positions. Positive actions involve so-called "pink quotas" in selecting individuals who should occupy apical positions. In addition, with the increasing awareness of gender equality issues also in developing countries, promoted by the annual human development reports, we expect that the glass ceiling effect may have a decreasing path in the years that we cover. On the other hand, the evolution of the participation of women to the labor market in MENA countries, suggests that other trends in the glass ceiling be also possible.

As a first step of our analysis, before presenting the results of PSM estimates, we test for the statistical difference in the probability of men and women to reach an executive job among the unmatched

2 In the present study, the sample for Jordan covers the period 2006-2016 which is subject to the Labor Law no. 8 implemented in 1996. The regulation of 1960 was repealed by this regulation. ILO (2017: 33) states that "According to the Labour Law, employers who hire twenty or more married women (who have a total of at least 10 children under four years of age) are required to provide child care".

3 Kassolu et al. (2019) indicates that the persistence of low female labor inclusion despite the improvements in educational attainments, independent of the business cycle is a puzzle. It applies also to Jordan and Tunisia.

samples. This allows us to have an idea of the general tendencies. We start from unconditional mean differences. Figure 1, 2 and 3 report the share of men and women holding executive jobs for all the countries and years available. Figure 1 relative to Egypt shows that the share of employed women holding an executive job is fluctuating between 8.10 and 13.16%, about half of men' share. The share of women is increasing up to 2012, but has shrunk by about 5% (about 40% of the 2012 level) in the post-Arab spring year 2018.

In Jordan (Figure 2), women maintain an almost constant share of 9.25 and 8,24%, which is about 40% smaller than the men' share, with a 1% further reduction in the years from 2010 to 2016.

Finally, in Tunisia, the share of women in apical job positions is only 2.6% against a men' share of 5.71, less than half of an already very low absolute value. This is probably due to the traditional economic structure existing in the country, which generates only few apical positions in the labor market.

<Insert Figure 1, 2 and 3 here>

<Insert Table 1 here>

Table 1 looks at differences in the share of men and women holding executive jobs across industries in the countries considered. Table 1 should be read together with Table 2 which provides shares of employment by gender again in the three broad sectors of industry. There is remarkable heterogeneity across countries and sectors and over time. In Egypt, for instance, strangely enough, the share of women holding apical positions is in the manufacturing sector quite high and in 3 out of the 4 years available, women have a higher share than men. More specifically, women's share fluctuates between 17.05 in 2006 and 37.3 in 2012. In the post-Arab spring era (2018), though, women's share in manufacturing shrinks back to about 26%, more or less the 1998 level. In agriculture, the share of women in apical positions is almost zero all over the period and always below 1%, against a male share of between 2 and 7%. In the service sector, though the share of women holding an apical position is always higher than that of men, suggesting that also in MENA countries, women have some competitive advantage in the service sector, although the private service sector is not female-dominated in terms of employment shares like in other countries. This is rather the case of public services. Behind these numbers there is likely to be a strong selection of the most talented and motivated women into employment. Pastore (2021) report that

employed women have a much higher education level than non-employed women and while men are much better educated than women in the entire population, nonetheless the situation reverts among wage employees, especially in the public sector. On the top of all that, however, it is notable that the share of female employment is very small in all sectors, but especially services and this has probably to do with the Muslims prescription that women should not interact with the other gender and in the service sector such interaction is essential to the production.

In the case of Jordan, the picture is similar under some respects. When we look at the overall shares, women have always a lower probability to reach apical positions, but when we disentangle the analysis at the level of broad sectors, the picture changes and this has to do also with the small numbers that we find in the cells relative to women, due to their low employment rate in all sectors of the economy. In manufacturing, the share of women holding apical positions has increased from 17.4% to 32.5% and is always bigger than the comparable figure relative to men, but we talk of very small absolute numbers. In agriculture, there are no women holding an apical position and also the share of men is too small to call. In the service sector, women have a much lower share than men in both years: 9.4 versus 17.3% in 2010 and 8.1 versus 13.9% in 2016 for women and men, respectively. It is probably the service sector that is affecting the overall shares. The presence of women in the service sector is bigger in Jordan (Table 2), suggesting that the Jordan society is more open to the employment of women in the service sector.

In Tunisia, the situation is similar to Jordan, rather than Egypt. The share of women holding apical positions is low everywhere, but especially in agriculture where it is around zero. In manufacturing, women have a share of 0.7% against a male share of 6.5%. In services, women have a share of about 3% against a male share of 6.5%. These numbers should be weighed with the very low share of women in apical positions in agriculture and manufacturing, although the overall employment shares of women within each sector are relatively high as compared to the other countries (Table 2).

It could be interesting to disentangle the analysis at the sector level for the cases of manufacturing and services, but not of agriculture, due to the very low share of individuals occupying apical positions in this sector for both genders, but especially women. Indeed, also the case of manufacturing should be taken with caution considering the very small absolute numbers of especially women.

Estimation Results

Descriptive analysis

Table 2 reports the gap in the mean share of women (treated) getting an executive job as compared to men (untreated) before matching in Egypt. The table is structured in four panels of which the first regards the overall sample and the following three refer to agriculture, manufacturing and services. The t-test on the statistical significance of the differences in shares by gender is always statistically significant, although with an overall absolute value which is fluctuating over the years between -5% and -12%. A similar conclusion is found also for each individual sector of industry, although in the agricultural and manufacturing sector the gap is less sizeable in absolute value then in the services. Moreover, while there seems to be a decreasing trend in the gap over the years in agriculture and manufacturing, conversely in the service sector the gap seems to further increase in the more recent years with respect to 1998. This may seem surprising if looked at with a Western type of eye, since in Western economies, the service sector is the female-dominated and female-friendly sector. However, as also Pastore (2021) note, this is not the case of Egypt, where the share of women is much lower than in western countries. The reason is to be found probably in the Muslim prescription not to allow to women to interact with the other gender which prevents women to work in the service sector, which by its very nature requires a greater degree of interaction with customers and co-workers.

<Insert Table 2>

These figures are tested econometrically and re-estimated for conditional mean by using the propensity score matching analysis and therefore after matching is achieved based on observed productivity characteristics. Results are presented in the following section.

Table 3 presents the same t-test results of the previous table but for the Jordanian economy. The glass ceiling is found for the whole economy as well as for each individual sector. This time the gap is much more sizeable in manufacturing (-7 and -15 pp) in both years considered rather than in agriculture and the service sector, where it is equal to the average (-2 pp).

Table 4 depicts the t-test results for the Tunisian economy. It shows that the glass ceiling effect applies to woman in the economy as a whole and across all the industrial sectors considered.

It is hard to explain what drives these differences across sectors and countries. Clearly, agriculture is more frequently a female-friendly sector than manufacturing. The service sector is different between the public and private ownership. In the former, women fare much better than in the latter. To check differences by firms ownership in the econometric analysis we will measure the gap in the public and private sector. Unfortunately, due to the small numbers in the cells it is impossible to study interactions between sector of industry and private ownership. Moreover, it is likely that the public sector for institutional reasons and the sectors most exposed to international competition, including tourism, may tend to discriminate less against women. This is evidence already found in some previous studies relative to the tourism industry in Turkey (see Cave and Kılıç, 2010) and other developing countries (for Latin America, see Pastore et al., 2021). Generally speaking, in developing countries, woman who work in the tourism related jobs are not inclined to hold high skilled jobs, but in the case of Caribbean countries, female managed or owned firms tend to hire more frequently women also in intermediate managerial positions.

Econometric analysis

The econometric analysis first discusses the results for the entire sample; and, then, for specific sub-groups. Before moving to the differences across broad sectors of industry, we look at differences between government jobs and private sector jobs.

The estimation results of the ATeT relative to the entire sample for Egypt are reported in Table 5. We also provide the mean differences in observed characteristics of the target and control group before and after matching to show that matching has reduced to zero the differences by gender in the sample (see Appendix Table A1-A3) and is hence catching the impact of gender independent of the heterogeneity of the two samples of men and women. Clearly, the effect of gender is reduced, suggesting that women have overall productivity characteristics smaller than men in the unmatched sample.

In fact, the tables show that there is a glass ceiling effect for women of a smaller size than the pre-matching mean and that this effect is slightly declining over time, like the differences in mean. The gap starts from -10 pp in 1998 and ends up to -8 pp in 2018. Clearly, a possible explanation of the

reduction is the presence of government policies, which is emphasized in the introduction and motivation section of the present study.

The slight reduction in the gender gap in reaching apical positions in the matched sample is good news and suggests that some important changes are happening in the labor force. This is in line with the hypothesis, already noted in the extant literature (see, for instance, Olivetti and Petrongolo, 2008; Meara et al. 2020), that differences by gender in the workforce tend to be lower than in the entire working population, simply because the women who work are the most motivated and skilled. The least skilled and motivated women tend to gather outside of employment, in unemployment or inactivity.

Table 6 presents the estimation results relative to the entire sample for Jordan. They confirm the existence of a glass ceiling for woman also in this country in both years considered. In 2010, ceteris paribus the probability of occupying an executive job position for a woman is -6 pp. lower than that of a man. The coefficient is slightly bigger in absolute value in 2016 (-8pp). The glass ceiling effect is statistically significant and of comparable size to that of the Egyptian economy. The lack of previous studies relative to other countries using the same methodology prevents us from comparing our findings with those relative to other countries.

Table 7 presents the estimation results for Tunisia and suggests that there is a glass ceiling effect, but it is only around 1 pp, though highly significant from a statistical point of view.

Overall, the results based on the PSM approach (ATeT) are in line with the unconditional differences and the ATE results, but with reduced coefficients, confirming the effectiveness of the PSM method to neat out the effect of observed heterogeneity across the samples considered.

<Insert Table 5 here>

<Insert Table 6 here>

<Insert Table 7 here>

The Figures A1-A3 in the Appendix show that there is sufficient common support for all estimates: in fact, the figures show that there is an overlap between treatment and control variables.

Robustness Checks

Do Government Jobs Mitigate the Glass Ceiling Problem?

In this section, we focus on detecting the existence of a glass ceiling for woman in public sector jobs. As suggested in the current literature and reported in the previous sections of this paper, Egypt and Jordan have a high share of female employment in the public sector, especially Egypt. We test for the existence of a glass ceiling in accessing apical positions in the public sector, by means of the same matching methodology used above for all executive jobs. The findings (see Table 8 for Egypt, Table 10 for Jordan, and Table 12 for Tunisia) show that woman who work in government jobs may have better chances than men to reach apical position in Jordan (+32 pp in 2010 and +9 in 2016), whereas in Egypt there is a glass ceiling against women also in the public sector, although slightly increasing over time. It is, however, statistically significant only in 2012. In Tunisia, the coefficient is positive and statistically significant, suggesting the presence of an advantage for women in reaching apical job positions. Probably, in Tunisia and Jordan the positive sign is a result of female labor participation policies implemented by the governments.

Employment policies may be an effective way to reduce the gender gap, also the most difficult to fight, namely the glass ceiling. The reason is simple: in the public sector, women can better defend their rights at work than in the private sector. This finding is in line with Pastore's (2021) analysis of the gender gap along the wage distribution in the public and private sector in Egypt. That study finds a glass ceiling also in the public sector, but smaller than in the private sector.

<Insert Table 8 here>

<Insert Table 9 here>

<Insert Table 10 here>

The Tables 9, 11 and 13 look at the glass ceiling in the private sector. In the case of Egypt (Table 9), the effect becomes sizeable and statistically significant, though shrinking in the last year from about -12.-13 pp to -7 pp. In Jordan, the glass ceiling effect is stable at -6 pp in both years (Table 11). In Tunisia, the effect is small in the private sector (-1 pp) (see Table 13).

<Insert Table 11 here>

<Insert Table 12 here>

<Insert Table 13 here>

<Insert Table 14 here>

As a next step of the analysis, we look at sectoral differences. Table 14 presents the results by broad sectors of industry in Egypt. As noted above, due to the small number of observations available, the estimates relative to the agricultural and manufacturing sectors are not very reliable and should be taken with the dues caveats. Indeed, coefficients are not statistically significant or are too big to be true. The estimations for the services sector suggest that there is glass ceiling effect against woman, though decreasing over time. In turn, observed characteristics seem to catch pretty well all the main differences by gender.

Table 15 shows our main estimations for Jordan. Similar to Egypt, as expected based on descriptive analysis, the estimates for agriculture are not fully reliable due to the small sample size. In fact, coefficients are very small and not statistically significant. For the services sector, the glass ceiling coefficient is around -5 pp, and -8 pp in 2010, and 2016, respectively.

The findings from the psm estimations for Tunisia (see Table 16) show that not surprisingly there is a statistically significant glass ceiling effect in the services sector, but not in the agricultural sector and in manufacturing. The low significance level of agriculture and manufacturing are due to the small number of observations.

Last, but not least, we look at differences between married and unmarried women (Tables 17-19). The current literature and real-world based evidence show that the glass ceiling effect in the countries considered may be heavier for married woman. Our expectation is confirmed: the glass ceiling effect for a married woman is higher than for the whole sample (see Table 17-19 for married people and Table 5, 6, and 7 for the overall sample). This is particularly true for Egypt (Table 17), where coefficients reach -14 pp in 2006 and 2012, to slightly decline in 2018 (-8 pp).

The estimations for Jordan and Tunisia show that there is glass ceiling effect especially for married women (see Table 18 and Table 19). Such effect has been increasing over 6 years for Jordan. For Tunisia, there is also a glass ceiling effect for married women, but it is smaller, like in the general

sample. All the estimates relative to married women return higher coefficients than those relative to the whole sample, suggesting that the overall effect is especially due to married women.

To examine the life cycle effect, we also breakdown our estimations for different age groups. Table 20 does it for Egypt. Interestingly, the estimated ATeT based on PSM estimates show that the middle aged women – from 31 to 40 (-13 pp.) years of age and from 41 to 50 (-20 pp.)–have a bigger glass ceiling problem than their younger peers in Egypt in 1998. However, such an effect decreases over the years. For older women the glass ceiling is not statistically significant, probably because of the lower share of women working at that age.

Table 21 gives the glass ceiling effect by age group for Jordan. In this country, the pattern is different and the glass ceiling effect is more sizeable and statistically significant among the younger age groups: -9 pp for the 23-30 and -8 pp. for the 31-40. For older women (the age is over 40) the effect is not statistically significant. Such effects reinforce themselves in 2016, reaching -15 pp. for the youngest segment, -11 pp. for the 31-40 years old and becoming statistically significant also for the over 40 (-9 pp. for the 41-50 years old).

Table 22 gives the glass ceiling effect estimated by PSM by age group in Tunisia, but the coefficients are always statistically insignificant.

Discussion

The findings based on our PSM approach confirm observation of differences in mean, but providing estimates able to neat out the effect of observed heterogeneity in the unmatched samples: there is a glass ceiling effect for women in all the countries considered over the entire period covered by our data, which means up to 20 years for Egypt and 6 years for Jordan. It means that there is a career development barrier for women in the countries considered. As we stated in the hypothesis development section, Egypt and Jordan are subject to low female labor participation rates. Indeed, the female labor force participation rate is among the world's lowest in these countries, and, therefore, the existence of a glass ceiling is "to be expected". The employment opportunities for women are very low since female labor is generally excluded from the labor market. The existing literature documents that

behind the labor market exclusion of women, especially in Jordan, there are several barriers. As Assaad et al. (2012) conclude,

"…the highly protective legislation on women's working conditions and maternity leave led employers to avoid hiring married women (p. 2)".

In these two countries, women's marital duties are considered to be more important than their professional work and career. The marital responsibilities of woman are perceived as the most important ones for them and are the outcome of social and cultural norms typical of MENA societies. (see Miles 2002; Peebles et al. 2007& Kalimat and Al-Talafha 2011; Assaad et al., 2012).

Interestingly, our estimates show that the glass ceiling effect is less strong for woman working in the public sector. The labor policies in both Egypt, and Jordan are aimed at an increase in the government-sector related female labor participation rate. Indeed, the public sector is the most regulated one. Instead, the labor market regulation in the private sector is still in its infancy, which explains the greater effort women have to put to reduce the glass ceiling effect when they work in private firms. In turn, this implies that increasing the size of the formal and regulated sector is an important tool to reduce the size of the glass ceiling effect.

Moreover, we also examine differences in the glass ceiling effect by sector of industry. Our results show that the effect is particularly sizeable and statistically significant especially in the service sector, most likely the private one. In agriculture and manufacturing, we find a statistically significant impact only in Egypt due to the small number of employed women in these sectors in Jordan and Tunisia. The small cell size does not allow measuring accurately the extent of the effect in these sectors and countries.

Last, but not last, we find also the glass ceiling effect for married woman is more than that relative to single woman in both countries. Last but not least, the glass ceiling effect for middle aged woman is bigger than that for their younger peers in Egypt, while the opposite holds true in the case of Jordan, where the effect is stronger in all the age classes from 23 to 50 years of age.

Concluding remarks

The glass ceiling is a significant barrier for women to advance their career and be promoted to managerial or apical positions. Based on anecdotal evidence, which is also supported by theoretical

reasoning, the glass ceiling effect can be seen as more typical of developing rather than of more advanced countries. This study aims to check whether this expectation is verified and actually shows that it is verified in a sample of MENA countries. We focus the analysis on: Egypt, Jordan and Tunisia. Most of the studies in the current literature focus on the 'level effect' by using cross-sectional data, however; we provide evidence also on 'the trend" in the effect, thanks to our repeated cross sections spanning over a period of up to 20 years in Egypt and 6 years for Jordan.

In the present study, unlike the previous papers, we use a novel approach to measuring the glass ceiling effect. We don't look at the gender wage gap along the wage distribution, as most previous studies do, but rather at the probability for a woman to access executive jobs. We do this by resorting to the matching approach. We believe that this approach is promising since it is able to provide "like for like" measures of the gap in accessing apical positions for woman as compared to men owning the same observed productivity characteristics in those countries. As far as we know, there is no study that examines the glass ceiling effects by using our methodology, which prevents us from comparing ours with previous findings. It will remain with future research to get comparable measures for the same countries in the future and for other countries in the area and elsewhere.

The findings suggest that woman at work in Egypt, Jordan, and Tunisia experience a sizeable glass ceiling. Such an effect is confirmed by and large for the entire period considered. These findings are fulfilling our theoretical expectations and anecdotal evidence. Other findings, though, are more surprising. For instance, the glass ceiling effect is less sizeable in the case of women who work in public sector jobs. These results prove, on the one hand, the effectiveness of the female-dominated public sector employment programs in Egypt, Jordan, and Tunisia and, on the other hand, the need to increase the degree of regulation in the private sector, at least in big and in the future, hopefully also in small sized firms.

We also find that the glass ceiling effect holds true and is statistically significant in the entire Egyptian economy and especially in the service sector in all the countries considered. This may come as a surprise but can be explained by the small number of observations relative to agriculture and manufacturing in Jordan and Tunisia, which prevents us from estimating the full effect adequately.

We offer some policy implications for the policy makers in the developing countries which are subject to low female labor participation rate and, where also career opportunities are lower for women. First, the low female labor participation rate, and glass ceiling problem underline the low return to education and human capital accumulation for woman in these countries in the private sector. Thus, the policy makers may establish a link between education and occupation opportunities for women, it may be done by means of incentives and /or government guarantee policies. Expansion of such guarantees in the private sector would be important to reduce the feeling of inequality for women and push them to further increase their efforts into education and labor force participation.

In the long run, public awareness should be raised, also in the media, regarding the advantages of the two-breadwinner family model and the need for women to work and realize their career expectations. A reduction of the interruptions due to maternity leave and the provision of adequate child rearing services would help women accumulate job specific work experience and reduce the gap from men.

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Table 1. Gender Inequality Index, 1995-2018

Country	1995	2000	2005	2010	2011	2012	2013	2014	2015	2016	2017	2018
Egypt	0.665	0.636	0.58	N/A	N/A	0.576	N/A	N/A	N/A	0.452	0.452	0.45
Jordan	0.673	0.632	0.56	0.494	0.497	0.496	0.494	0.493	0.493	0.474	0.471	0.469
Tunisia	0.60	0.65	0.68	0.71	0.71	0.72	0.72	0.72	0.73	0.73	0.73	0.73
Very high human development	0.33	0.29	0.256	0.228	0.22	0.214	0.206	0.201	0.196	0.189	0.181	0.175
High human development	N/A	0.422	0.389	0.364	0.359	0.354	0.344	0.34	0.337	0.335	0.334	0.331
Medium human development	0.674	N/A	0.597	0.562	0.557	0.55	0.544	0.533	0.522	0.514	0.507	0.501
Low human development	N/A	N/A	0.643	0.625	0.616	0.614	0.605	0.606	0.598	0.594	0.591	0.59
Organization for Economic Co-operation and Development	0.314	0.291	0.26	0.234	0.226	0.22	0.213	0.207	0.201	0.195	0.189	0.182
World	0.547	0.521	0.493	0.473	0.467	0.463	0.457	0.454	0.449	0.446	0.442	0.439

Source: UNDP, 2020

Table 2. Mean differences in the shares of employment in apical positions, treated and untreated, before matching: Egypt

	Treated		Untreated		T-test				
	Panel (a): All								
	Average	St.dev.	Average	St.dev.	Diff.	Prob.	**N**	**M**	**F**
1998	0.05	0.003	0.11	0.004	-0.06	0.00	4233	1921	2310
2006	0.07	0.003	0.16	0.005	-0.12	0.00	5671	2717	2954
2012	0.10	0.004	0.19	0.005	-0.05	0.00	7311	3626	3685
2018	0.07	0.003	0.15	0.005	-0.08	0.00	8937	4519	4418
	Panel (b): Agriculture								
1998	0.004	0.002	0.04	0.009	-0.03	0.00	1035	307	728
2006	0.006	0.002	0.04	0.008	-0.03	0.00	1198	309	808
2012	0	0	0.01	0.005	-0.01	0.00	907	432	475
2018	0	0	0.03	0.008	-0.03	0.00	1149	456	693
	Panel (c): Manufacturing								
1998	0.70	0.46	0.50	0.50	-0.20	0.00	462	416	46
2006	00.18	0.38	0.14	0.35	-0.03	0.00	676	588	83
2012	0.12	0.33	0.09	9.29	-0.03	0.00	897	846	51
2018	0.25	0.05	0.17	0.01	-0.08	0.03	1045	972	73
	Panel (d): Services								
1998	0.59	0.02	0.42	0.01	-0.16	0.00	1378	977	401
2006	0.66	0.01	0.43	0.01	-0.22	0.00	1911	1401	510
2012	0.74	0.01	0.43	0.01	-0.31	0.00	2409	1790	619
2018	0.51	0.01	0.29	0.009	-0.22	0.00	2632	1984	648

Note: See psm estimations for the observations for each year. N: Total observations, M: male, F: female

Table 3. Mean differences in employment rates, treated and untreated, before matching: Jordan

	Treated		Untreated		T-test		N	M	F
	Panel (a): All								
	Average	St.dev.	Average	St.dev.	Diff.	Prob.			
2010	0.04	0.001	0.07	0.002	-0.02	0.00	11203	5552	5651
2016	0.04	0.01	0.06	0.001	-0.02	0.00	15413	7742	7671
	Panel (b): Agriculture								
2010	0	0	0.02	0.01	-0.02	0.01	312	163	149
2016	0	0	0.02	0.00	-0.02	0.06	325	228	97
	Panel (c): Industry								
2010	0.18	0.03	0.11	0.01	-0.07	0.01	880	794	86
2016	0.27	0.01	0.12	0.04	-0.15	0.00	913	836	77
	Panel (d): Services								
2010	0.04	0.001	0.07	0.002	-0.02	0.00	1001	4595	5416
2016	0.03	0.001	0.06	0.001	-0.02	0.00	1417	5678	7497

Note: See psm estimations for the observations for each year.

Table 4. Mean differences in employment rates, treated and untreated, before matching: Tunisia

	Treated		Untreated		T-test		N	M	F
	Panel (a): All								
	Average	St.dev.	Average	St.dev.	Diff.	Prob.			
2014	0.01	0.002	0.03	0.001	-0.01	0.00	10160	4830	5330
	Panel (b): Agriculture								
2014	0	0	0.005	0.002	-0.005	0.02	1294	642	652
	Panel (c): Industry								
2014	0.05	0.01	0.06	0.008	-0.01	0.25	862	727	135
	Panel (d): Services								
2014	0.01	0.001	0.03	0.002	-0.01	0.00	8004	3461	4543

Note: See psm estimations for the observations for each year.

Table 5. Estimation Results: Becoming Executive for Female: Egypt

Year	First Stage Probit Model Coefficient	ATeT	Observations per group
1998	-0.19 (0.01)	-0.10 (0.03)***	T=2306 C=1920 N=4226
2006	-0.18 (0.01)	-0.11 (0.02)***	T=2954 C=2717 N=5671
2012	-0.14 (0.009)	-0.12 (0.02)***	T=3683 C=3625 N=7308
2018	-0.09 (0.07)	-0.07 (0.01)***	T=4389 C=4472 N=8861

Source: The authors' estimations based on the ERF dataset. ***p<0.05. The standard errors are given in the parentheses.

Table 6. Estimation Results: Becoming Executive for Female: Jordan

Year	First Stage Probit Model Coefficient	ATeT	Observations per group
2010	-0.07 (0.006)***	-0.06 (0.01)***	T=5651 C=5552 N=11203
2016	-0.05 (0.005)***	-0.08 (0.01)***	T=7592 C=7634 N=15226

Source: The authors' estimations based on the ERF dataset. See the notes under Table 6.
***p<0.05.

Table 7. Estimation Results: Becoming Executive for Female: Tunisia

Year	First Stage Probit:	ATeT	Observations per group
2014	-0.03 (0.004)	-0.01 (0.008)***	T=4738 C=4141 N=8879

Source: The authors' estimations based on the ERF dataset. See the notes under Table 6.
***p<0.05.

Table 8. Estimation Results: Becoming Executive for Female in Government Jobs: Egypt

Year	First Stage Probit Model Coefficient	ATeT	Observations per group
1998	0.14 (0.03)	-0.002 (0.05)	T=342 C=772 N=1112
2006	0.23 (0.02)	0.04 (0.04)	T=399 C=877 N=1276
2012	0.26 (0.02)	0.08 (0.03)***	T=462 C=875 N=1337
2018	0.17 (0.02)	0.07 (0.04)	T=428 C=853 N=1281

Source: The authors' estimations based on the ERF dataset. See the notes under Table 5.
***p<0.05.

Table 9. Estimation Results: Becoming Executive for Female in Private Sector Jobs: Egypt

Year	First Stage Probit Model Coefficient	ATeT	Observations per group
1998	-0.15 (0.009)	-0.12 (0.03)***	T=1961 C=1133 N=3094
2006	-0.15 (0.008)	-0.13 (0.02)***	T=2549 C=1805 N=4354
2012	-0.13 (0.007)	-0.12 (0.02)***	T=3213 C=2668 N=5881
2018	-0.08 (0.005)	-0.07 (0.01)***	T=3959 C=3569 N=7528

Source: The authors' estimations based on the ERF dataset. See the notes under Table 5.
***p<0.05.

Table 10. Estimation Results: Becoming Executive for Female in Government Jobs: Jordan

Year	First Stage Probit Model Coefficient	ATeT	Observations per group
2010	0.42 (0.02)	0.10 (0.04)***	T=475 C=1677 N=2152
2016	0.47 (0.02)	0.09 (0.03)***	T=515 C=2020 N=2535

Source: The authors' estimations based on the ERF dataset. See the notes under Table 5.
***p<0.05.

Table 11. Estimation Results: Becoming Executive for Female in Private Jobs: Jordan

Year	First Stage Probit Model Coefficient	ATeT	Observations per group
2010	-0.07 (0.005)	-0.06 (0.01)***	T=5157 C=3844 N=9001
2016	-0.04 (0.003)	-0.06 (0.009)***	T=7047 C=5479 N=12526

Source: The authors' estimations based on the ERF dataset. See the notes under Table 5.
***p<0.05.

Table 12. Estimation Results: Becoming Executive for Female in Government Jobs: Tunisia

Year	First Stage Probit Model Coefficient	ATeT	Observations per group
2014	0.29 (0.04)	0.11 (0.06)	T=163 C=548 N=711

Source: The authors' estimations based on the ERF dataset. See the notes under Table 6.
***p<0.05.

Table 13. Estimation Results: Becoming Executive for Female in Private Jobs: Tunisia

Year	First Stage Probit Model Coefficient	ATeT	Observations per group
2014	-0.02 (0.003)	-0.01 (0.006)***	T=4563 C=3593 N=8156

Source: The authors' estimations based on the ERF dataset. See the notes under Table 6.
***p<0.05.

Table 14. Estimation Results: Becoming Executive for Female in the Main Sectors: Egypt

Agriculture			
Year	First Stage Probit Model Coefficient	ATeT	Observations per group
1998	-0.05 (0.01)	-0.03 (0.03)	T=722 C=307 N=1029
2006	-0.06 (0.01)	-0.03 (0.02)	T=795 C=388 N=1183
2012	-0.01 (0.00)	-0.01 (0.1)	T=427 C=470 N=897
2018	-0.03 (0.007)	-0.01 (0.01)	T=694 C=456 N=1150
Industry			
1998	0.003 (0.06)	0.02 (0.10)	T=46 C=356 N=402
2006	-0.04 (0.04)	-0.18 (0.07)***	T=88 C=587 N=675
2012	0.20 (0.05)	0.04 (0.10)***	T=50 C=679 N=729
2018	0.07 (0.04)	0.01 (0.070)	T=73 C=820 N=893
Services			
1998	0.11 (0.02)	0.05 (0.05)	T=400 C=963 N=1363
2006	0.21 (0.02)	0.10 (0.05)***	T=510 C=1401 N=1911
2012	0.29 (0.02)	0.12 (0.04)***	T=618 C=1789 N=2407
2018	0.21 (0.02)	0.08 (0.03)***	T=647 C=1983 N=2630

Source: The authors' estimations based on the ERF dataset. See the notes under Table 6.
***p<0.05.

Table 15. The PSM Estimation Results for in The Main Sectors: Jordan

Agriculture			
Year	First Stage Probit Model Coefficient	ATeT	Observations per group
2010	-0.03 (0.01)	-0.02 (0.02)	T=147 C=163 N=310
2016	-0.02 (0.01)	-0.04 (0.03)	T=90 C=228 N=318
Industry			
2010	0.04 (0.03)	-0.02[a] (0.06)	T=86 C=786 N=872
2016	0.18 (0.04)	0.09 (0.08)	T=77 C=755 N=832
Services			
2010	-0.07 (0.006)	-0.05 (0.01)***	T=5416 C=4595 N=10011
2016	-0.05 (0.005)	-0.08 (0.01)***	T=7418 C=6570 N=13988

Note: The estimations are based on the bootstrapped standard errors with 50 replications.
Source: The authors' estimations based on the ERF dataset. See the notes under Table 6.
***p<0.05. a: We use the Mahalanobis matching since the standard one-to-one neighborhood based matching does not work for the estimation.

Table 16. Estimation Results: Becoming Executive for Female in the Main Sectors: Tunisia

Year	Sector	First Stage Probit Model Coefficient	ATeT	Observations per group
2014	Agriculture	-0.006 (0.003)	-0.06 (0.08)[a]	T=633 C=610 N=1243
2014	Industry	-0.002 (0.02)	-0.02 (0.04)	T=125 C=606 N=731
2014	Services	-0.04 (0.005)	-0.02 (0.01)***	T=3977 C=2846 N=6823

Source: The authors' estimations based on the ERF dataset. See the notes under Table 6. ***p<0.05. a: We use the Mahalanobis matching since the standard one-to-one neighborhood based matching does not work for the estimation.

Table 17. Estimation Results: Becoming Executive for married women in Egypt

Year	First Stage Probit Model Coefficient	ATeT	Observations per group
1998	-0.22 (0.01)	-0.10 (0.02)***	T=1930 C=1491 N=3421
2006	-0.20 (0.01)	-0.14 (0.02)***	T=2294 C=2140 N=4434
2012	-0.16 (0.01)	-0.14 (0.01)***	T=2691 C=2881 N=5572
2018	-0.10 (0.008)	-0.08 (0.01)***	T=3049 C=3445 N=6494

Source: The authors' estimations based on the ERF dataset. See the notes under Table 6.
***p<0.05.

Table 18. Estimation Results: Becoming Executive for Female who is married: Jordan

Year	First Stage Probit Model Coefficient	ATeT	Observations per group
2010	-0.06 (0.006)	-0.08 (0.01)***	T=4117 C=4320 N=8437
2016	-0.05 (0.005)	-0.10 (0.01)***	T=5490 C=5969 N=11459

Source: The authors' estimations based on the ERF dataset. See the notes under Table 6.
***p<0.05.

Table 19. Estimation Results: Becoming Executive for Female who is married: Tunisia

Year	First Stage Probit Model Coefficient	ATeT	Observations per group
2014	-0.03 (0.005)	-0.01 (0.009)***	T=3197 C=3162 N=6359

Source: The authors' estimations based on the ERF dataset. See the notes under Table 6.
***p<0.05.

Table 20. The Glass Ceiling Effect for Age Groups: Egypt

Year	Age Group 1: 23-30	Age Group 2: 31-40	Age Group 3: 41-50	Age Group: 51 and more
1998	First Stage Probit: -0.10 (0.02) PSM: -0.05 (0.04)*** T=562 C=511 N=1073	First Stage Probit: -0.19 (0.02) PSM: -0.13 (0.04)*** T=800 C=640 N=1440	First Stage Probit: -0.27 (0.02) PSM: -0.20 (0.04)*** T=526 C=485 N=1011	First Stage Probit: -0.23 (0.07) PSM: -0.03 (0.10) T=309 C=280 N=589
2006	First Stage Probit: -0.10 (0.01) PSM: -0.14 (0.03)*** T=627 C=729 N=1406	First Stage Probit: -0.19 (0.02) PSM: -0.13 (0.03)*** T=777 C=682 N=1459	First Stage Probit: -0.25 (0.02) PSM: -0.23 (0.07)*** T=779 C=630 N=1409	First Stage Probit: -0.19 (0.01)PSM: -0.06 (0.04) T=742 C=626 N=1368
2012	First Stage Probit: -0.04 (0.01) PSM: -0.16 (0.03)*** T=829 C=1007 N=1836	First Stage Probit: -0.16 (0.01) PSM: -0.14 (0.03)*** T=809 C=958 N=1767	First Stage Probit: -0.17 (0.02) PSM: -0.10 (0.06)*** T=819 C=640 N=1459	First Stage Probit: -0.19 (0.02) PSM: -0.07 (0.04) T=1222 C=1020 N=2242
2018	First Stage Probit: -0.07 (0.01) PSM:	First Stage Probit: -0.08 (0.01) PSM: -0.08	First Stage Probit: -0.16 (0.01)	First Stage Probit: -0.08 (0.01) PSM:

	-0.10 (0.02)*** T=846 C=1018 N=1864	(0.02)*** T=1028 C=1291 N=2319	PSM: -0.08 (0.04)*** T=782 C=755 N=1537	-0.05 (0.02)*** T=1732 C=1408 N=3140

Source: The authors' estimations based on the ERF dataset. See the notes under Table 6.
***p<0.05.

Table 21. The Glass Ceiling Effect for Age Groups: Jordan

Year	Age Group 1: 23-30	Age Group 2: 31-40	Age Group 3: 41-50	Age Group: 51 and more
2010	First Stage Probit: -0.05 (0.01) PSM: -0.09 (0.02)*** T=1430 C=1470 N=2900	First Stage Probit: -0.06 (0.01) PSM: -0.08 (0.02)*** T=1695 C=1635 N=3330	First Stage Probit: -0.10 (0.01) PSM: -0.05 (0.03) T=1137 C=1124 N=2261	First Stage Probit: -0.06 (0.008) PSM: -0.007 (0.02) T=1292 C=1249 N=2541
2016	First Stage Probit: -0.05 (0.01) PSM: -0.15 (0.02)*** T=1951 C=2047 N=3998	First Stage Probit: -0.04 (0.01) PSM: -0.11 (0.02)*** T=1966 C=2082 N=4048	First Stage Probit: -0.05 (0.01) PSM: -0.09 (0.02)*** T=1586 C=1576 N=3162	First Stage Probit: -0.05 (0.005) PSM: -0.01 (0.01) T=1955 C=1814 N=3769

Note: The estimations are based on the bootstrapped standard errors with 50 replications.
Source: The authors' estimations based on the ERF dataset. See the notes under Table 5.
***p<0.05.

Table 22. The Glass Ceiling Effect for Age Groups: Tunisia

Year	Age Group 1: 23-30	Age Group 2: 31-40	Age Group 3: 41-50	Age Group: 51 and more
2014	First Stage Probit Model Coefficient: -0.01 (0.01) PSM: -0.01 (0.02) T=728 C=552 N=1280	First Stage Probit Model Coefficient: -0.04 (0.01) PSM: 0 (0.01) T=1049 C=878 N=1927	First Stage Probit Model Coefficient: -0.06 (0.01) PSM: 0.005 (0.01) T=999 C=852 N=1851	First Stage Probit Model Coefficient: -0.02 (0.004) PSM: -0.005 (0.009) T=1949 C=1859 N=3808

Note: The estimations are based on the bootstrapped standard errors with 50 replications.
Source: The authors' estimations based on the ERF dataset. See the notes under Table 5.
***p<0.05.

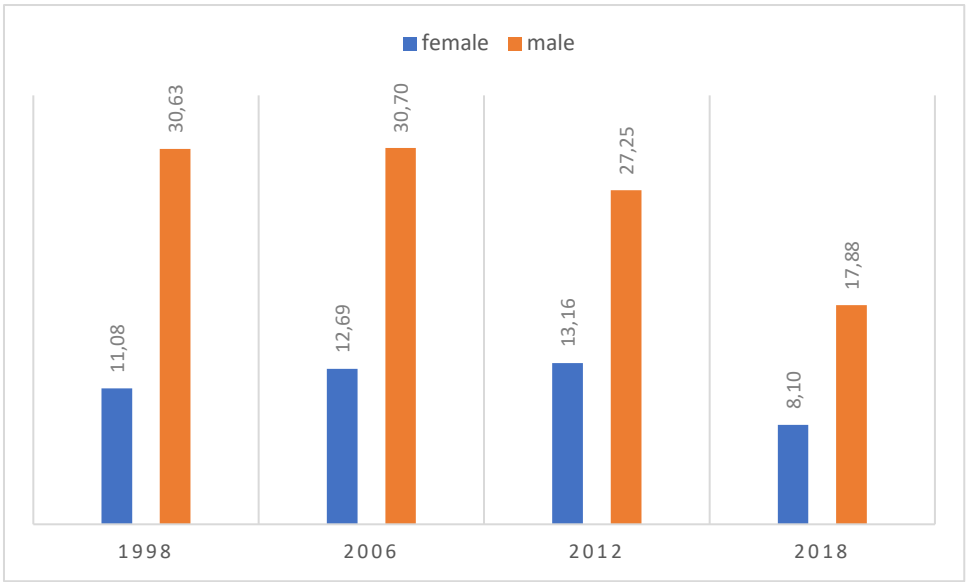

Figure 1. Share of men in apical jobs as of total number of male workers and women in apical jobs as of total number of female workers, Egypt, %

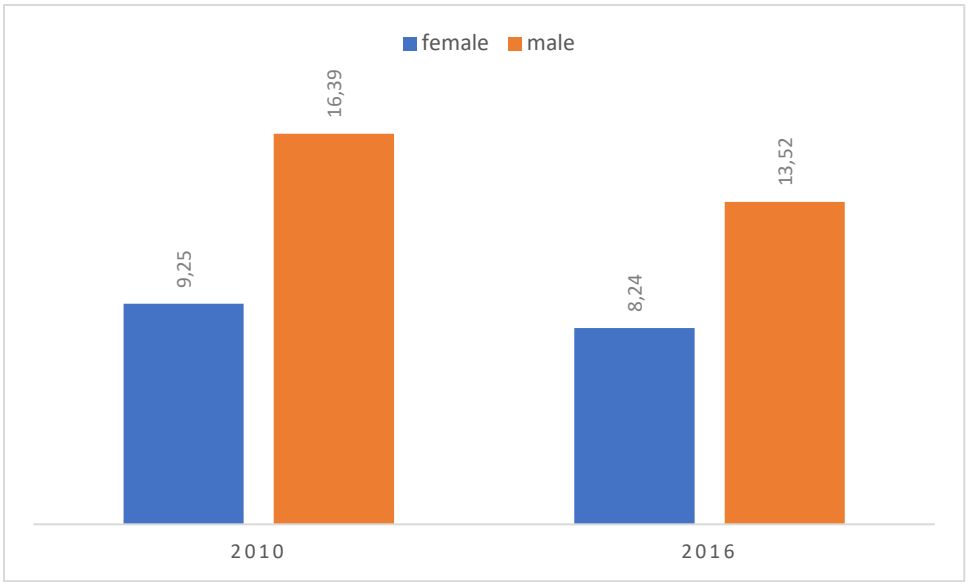

Figure 2. Share of men in apical jobs as of total number of male workers and women in apical jobs as of total number of female workers, Jordan, %

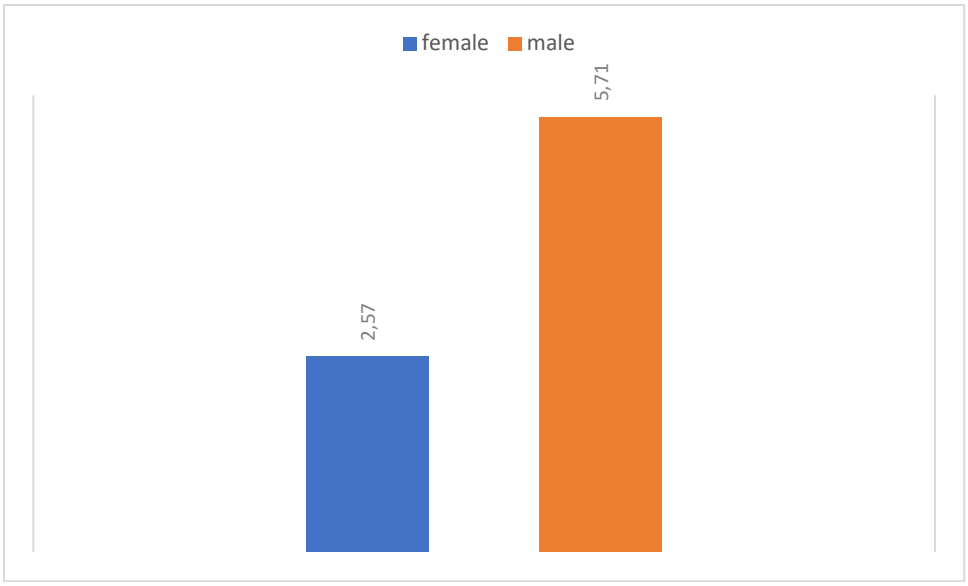

Figure 3. Share of men in apical jobs as of total number of male workers and women in apical jobs as of total number of female workers, Tunisia, %, 2014

Appendix. Diagnostic Tests of the Propensity Score Matching

Table A1. Egypt Bias Reduction Tables

1988

	Mean		t-test
Variable	**Treated Control**	**%bias**	**t p>t**
workexp	27.141 27.83	-5.3	-1.79 0.073
Alexandria	.06635 .05507	4.5	1.60 0.109
Port Said	.00781 .00304	5.5	2.21 0.027
Suez	.01431 .01171	2.1	0.78 0.436
Damietta	.0399 .04467	-2.4	-0.80 0.421
Dakahlia	.04423 .04683	-1.3	-0.42 0.672
Sharkia	.04814 .10581	-26.7	-7.39 0.000
Kalyoubia	.04033 .0464	-3.1	-1.01 0.312
Kafr-Elsheikh	.06245 .05377	3.6	1.26 0.208
Gharbia	.04467 .03556	4.4	1.58 0.115
Menoufia	.01388 .01171	1.8	0.66 0.512
Behera	.05724 .05464	1.1	0.38 0.701
Ismailia	.05377 .0425	4.8	1.79 0.074
Giza	.03599 .03643	-0.2	-0.08 0.937
Beni-Suef	.05247 .05854	-2.8	-0.90 0.368
Fayoum	.04293 .03122	5.6	2.10 0.035
Menia	.05291 .05377	-0.4	-0.13 0.896
Asyout	.06114 .07719	-6.8	-2.15 0.032
Suhag	.04683 .02819	8.7	3.34 0.001
Qena	.0516 .0399	5.4	1.90 0.057
Aswan	.0516 .04293	4.0	1.39 0.165
Luxur	.0052 .0026	3.6	1.42 0.157
Never Married	.05984 .05377	1.8	0.89 0.373
contractually married	.00087 .00173	-1.4	-0.82 0.414
Married	.83695 .84302	-1.5	-0.56 0.574
Divorced	.01344 .01691	-3.7	-0.96 0.335
Widowed	.0889 .08456	2.1	0.52 0.601
Less than Intermediate (Educ=2)	.07762 .06201	5.2	2.08 0.038
Intermediate (Educ=3)	.11882 .11188	1.9	0.74 0.461
Above Intermediate (Educ=4)	.19167 .19948	-1.9	-0.67 0.504

University (Educ=5)	.0412 .03599	2.3	0.92 0.359
Post Graduate (Educ=6)	.07329 .08066	-2.3	-0.94 0.348

2006

	Mean		t-test
Variable	Treated Control	%bias	t p>t
workexp	29.629 30.207	-3.9	-1.46 0.144
Alexandria	.06127 .05619	2.1	0.83 0.407
Port Said	.00846 .00812	0.4	0.14 0.886
Suez	.01456 .01557	-0.8	-0.32 0.749
Damietta	.0413 .02844	6.5	2.70 0.007
Dakahlia	.04773 .04841	-0.3	-0.12 0.903
Sharkia	.0501 .05619	-2.8	-1.04 0.297
Kalyoubia	.04536 .09885	-25.8	-7.99 0.000
Kafr-Elsheikh	.06195 .07414	-5.1	-1.86 0.063
Gharbia	.04638 .04739	-0.5	-0.18 0.854
Menoufia	.0149 .00812	5.3	2.44 0.015
Behera	.05619 .04875	3.1	1.28 0.199
Ismailia	.05146 .05044	0.4	0.18 0.859
Giza	.03148 .02776	2.1	0.84 0.399
Beni-Suef	.05518 .04367	5.2	2.04 0.041
Fayoum	.04536 .03521	4.8	1.99 0.047
Menia	.05349 .06229	-4.0	-1.45 0.148
Asyout	.06297 .07684	-5.8	-2.09 0.036
Suhag	.04942 .03961	4.6	1.83 0.067
Qena	.05247 .04096	5.2	2.10 0.036
Aswan	.05146 .03724	6.6	2.66 0.008
Luxur	.00474 .00034	6.7	3.36 0.001
Never Married	.07075 .06364	2.1	1.09 0.275
contractually married	.00102 .00135	-0.7	-0.38 0.705
Married	.77657 .78808	-2.8	-1.07 0.284
Divorced	.01862 .01523	3.2	1.01 0.313
Widowed	.13304 .13169	0.5	0.15 0.878
Less than Intermediate (Educ=2)	.04502 .03588	3.7	1.78 0.075
Intermediate (Educ=3)	.12221 .11916	0.9	0.36 0.719
Above Intermediate (Educ=4)	.24543 .26473	-4.3	-1.70 0.089

University (Educ=5)	.03318 .02505	4.1	1.86 0.063
Post Graduate (Educ=6)	.09851 .09479	1.1	0.48 0.628

2012

	Mean		t-test
Variable	Treated Control	%bias	t p>t
workexp	30.815 31.158	-2.1	-0.84 0.401
Alexandria	.05973 .06163	-0.8	-0.34 0.733
Port Said	.00896 .00462	4.6	2.27 0.023
Suez	.01358 .00543	6.8	3.61 0.000
Damietta	.04209 .08037	-19.5	-6.87 0.000
Dakahlia	.04806 .04724	0.4	0.16 0.870
Sharkia	.04914 .04697	1.0	0.44 0.663
Kalyoubia	.04589 .06815	-10.7	-4.12 0.000
Kafr-Elsheikh	.06326 .06001	1.4	0.58 0.561
Gharbia	.04833 .04317	2.5	1.06 0.289
Menoufia	.0152 .01955	-3.4	-1.43 0.154
Behera	.06136 .05295	3.4	1.56 0.120
Ismailia	.05186 .05322	-0.6	-0.26 0.794
Giza	.03584 .03122	2.5	1.10 0.271
Beni-Suef	.0543 .05865	-1.9	-0.81 0.419
Fayoum	.0429 .04127	0.8	0.35 0.728
Menia	.05213 .04887	1.5	0.64 0.523
Asyout	.06326 .05295	4.3	1.89 0.058
Suhag	.04914 .03611	6.1	2.77 0.006
Qena	.05322 .03747	7.0	3.25 0.001
Aswan	.0524 .04616	2.8	1.24 0.216
Luxur	.00489 .00081	6.4	3.28 0.001
Never Married	.08417 .08064	1.0	0.55 0.582
contractually married	.00244 .0019	1.1	0.50 0.617
Married	.73065 .73771	-1.7	-0.69 0.493
Divorced	.02036 .01358	5.9	2.26 0.024
Widowed	.16237 .16617	-1.4	-0.44 0.660
Less than Intermediate (Educ=2)	.03394 .02688	3.4	1.76 0.078
Intermediate (Educ=3)	.12327 .10616	4.8	2.30 0.021

Above Intermediate (Educ=4)	.2707 .28889	-4.0	-1.74 0.082
University (Educ=5)	.03122 .02987	0.7	0.34 0.735
Post Graduate (Educ=6)	.14173 .15341	-3.1	-1.41 0.158

2018

	Mean		t-test
Variable	Treated Control	%bias	t p>t
workexp	32.655 33.231	-3.2	-1.42 0.157
Alexandria	.05673 .05605	0.3	0.14 0.890
Port Said	.00889 .00866	0.2	0.11 0.909
Suez	.01344 .01094	2.1	1.07 0.285
Damietta	.04215 .04534	-1.6	-0.73 0.465
Dakahlia	.04694 .04397	1.4	0.67 0.505
Sharkia	.0483 .05878	-4.9	-2.18 0.029
Kalyoubia	.04488 .03782	3.4	1.66 0.097
Kafr-Elsheikh	.06243 .07063	-3.4	-1.54 0.123
Gharbia	.0458 .04466	0.6	0.26 0.797
Menoufia	.01481 .01732	-2.0	-0.93 0.350
Behera	.06083 .06152	-0.3	-0.13 0.894
Ismailia	.05514 .05673	-0.7	-0.33 0.745
Giza	.03851 .04625	-4.0	-1.80 0.072
Beni-Suef	.05673 .05149	2.3	1.09 0.278
Fayoum	.0458 .04192	1.8	0.89 0.376
Menia	.0524 .0622	-4.4	-1.97 0.048
Asyout	.06083 .06562	-2.0	-0.92 0.357
Suhag	.0524 .04397	3.9	1.84 0.065
Qena	.05559 .04534	4.5	2.19 0.028
Aswan	.05445 .05172	1.2	0.57 0.568
Luxur	.0041 .00159	4.2	2.20 0.028
Never Married	.08043 .0761	1.3	0.75 0.450
contractually married	.00068 .00046	0.7	0.45 0.655
Married	.69469 .70631	-2.6	-1.19 0.235
Divorced	.02711 .02096	4.5	1.88 0.060
Widowed	.19708 .19617	0.3	0.11 0.914
Less than Intermediate	.05332 .04488	3.4	1.83 0.068
Intermediate	.10139 .08909	3.8	1.96 0.050

Above Intermediate	.28321 .30007	-3.6	-1.74 0.082
University	.03144 .02256	5.0	2.57 0.010
Post Graduate	.17703 .17293	1.0	0.51 0.613

Jordan's Bias Reduction Tables per Year
2006

	Mean		t-test
Variable	Treated Control	%bias	t p>t
workexp	26.559 26.987	-2.5	-1.24 0.215
Balqa |	.07857 .07238	2.3	1.25 0.213
Zarqa	.14104 .13838	0.8	0.41 0.684
Madaba	.0407 .03663	2.1	1.12 0.262
Irbid	.16988 .18351	-3.6	-1.90 0.058
Mafraq	.0699 .06512	1.9	1.01 0.311
Jarash	.05592 .05716	-0.5	-0.29 0.776
Ajlaoun	.0384 .03114	3.8	2.11 0.035
Karak	.0699 .05928	4.3	2.30 0.022
Tafileh	.02637 .03327	-4.3	-2.16 0.031
Ma'an	.03415 .02637	4.3	2.42 0.016
Aqaba	.02283 .02194	0.6	0.32 0.751
Married	.72854 .75792	-6.8	-3.58 0.000
Divorced	.02159 .01699	3.9	1.78 0.075
Widowed	.10671 .10618	0.2	0.09 0.927
Read&Write	.16528 .1697	-1.2	-0.63 0.529
Less Than Intermediate	.24102 .2412	-0.0	-0.02 0.982
Intermediate	.15289 .17041	-4.8	-2.53 0.011
Above Intermediate	.12688 .12352	1.1	0.54 0.589
University	.11856 .10388	4.4	2.48 0.013
Post Graduate	.01345 .01044	2.1	1.47 0.141

2016

	Mean		t-test
Variable	Treated Control	%bias	t p>t
workexp	27.351 27.967	-3.5	-2.03 0.043
Balqa |	.0731 .07534	-0.9	-0.53 0.599
Zarqa	.14054 .15292	-3.5	-2.16 0.031
Madaba	.04031 .03346	3.5	2.24 0.025
Irbid	.15029 .15424	-1.1	-0.68 0.498
Mafraq	.1063 .1034	0.9	0.58 0.560
Jarash	.07521 .07152	1.4	0.87 0.384
Ajlaoun	.03135 .02595	3.1	1.99 0.046
Karak	.06573 .06178	1.6	1.00 0.319
Tafileh	.02661 .02147	3.2	2.07 0.039

Ma'an	.03451 .027	4.1	2.68 0.007
Aqaba	.0303 .03438	-2.2	-1.42 0.155
Married	.72313 .75909	-8.4	-5.06 0.000
Divorced	.0245 .0137	8.2	4.87 0.000
Widowed	.10537 .10788	-1.1	-0.50 0.617
Read&Write	.18599 .19283	-1.7	-1.08 0.282
Less Than Intermediate	.21272 .2093	0.8	0.52 0.605
Intermediate	.12553 .1254	0.0	0.02 0.980
Above Intermediate	.10353 .09563	2.8	1.63 0.104
University	.16583 .17031	-1.2	-0.74 0.461
Post Graduate	.01673 .0133	2.4	1.74 0.083

Tunisia's Bias Reduction Table, 2014

	Mean		t-test
Variable	Treated Control	%bias	t p>t
workexp	37.994 38.339	-1.8	-0.86 0.388
Ariana	.02216 .01963	1.7	0.86 0.389
Ben Arous	.04369 .04432	-0.3	-0.15 0.881
Manouba	.03187 .02469	4.1	2.11 0.035
Nabeul	.07577 .0783	-0.9	-0.46 0.644
Zaghouan	.01646 .01604	0.3	0.16 0.871
Bizerte	.06522 .07197	-2.8	-1.30 0.193
Beja	.04538 .04474	0.3	0.15 0.882
Jendouba	.05635 .06184	-2.4	-1.13 0.257
Le Kef	.02659 .02195	2.8	1.47 0.142
Siliana	.03103 .02554	3.2	1.61 0.107
Sousse	.03461 .03504	-0.2	-0.11 0.911
Monastir	.01604 .02089	-4.0	-1.76 0.079
Mahdia	.05593 .05298	1.3	0.63 0.526
Sfax	.11608 .1374	-6.8	-3.12 0.002
Kairouan	.07366 .07873	-2.0	-0.93 0.353
Kasserine	.04538 .03208	6.7	3.36 0.001
Sidi Bouzide	.03588 .03208	2.1	1.02 0.307
Gabes	.03947 .04875	-4.8	-2.20 0.028
Mednine	.04601 .04707	-0.5	-0.24 0.807
Tataouine	.02005 .01878	0.9	0.45 0.655
Gafsa	.02913 .02111	4.9	2.50 0.013
Tozeur	.00591 .00612	-0.3	-0.13 0.894
Kebili	.02026 .02026	0.0	0.00 1.000
Married	.67476 .69228	-3.9	-1.83 0.067
Divorced	.01625 .01984	-3.4	-1.31 0.190
Widowed	.13339 .11355	7.4	2.94 0.003
Read&Write	.12959 .12558	1.1	0.58 0.559
Less Than Intermediate	.20621 .20198	1.0	0.51 0.610
Intermediate	.05973 .05488	1.7	1.02 0.309
Above Intermediate	.02934 .02892	0.2	0.12 0.903
University	.03694 .02702	5.1	2.75 0.006
Post Graduate	.00612 .00401	2.5	1.45 0.148

Table A2. Shares holding executive jobs by gender in the three broad sectors of industry in Egypt, Jordan and Tunisia

(a) Egypt						
	The number of female executives	The number of male executives	Total number of female employees	Total number of male employees	The share of female executive as of total number of female executives, %	The share of male executive as of total number of male executives, %
Total economy						
1998	256	589	2310	1923	11,08	30,63
2006	375	834	2954	2717	12,69	30,70
2012	485	988	3685	3626	13,16	27,25
2018	358	808	4418	4519	8,10	17,88
Manufacturing						
1998	11	95	46	416	23,91	22,84
2006	15	127	88	588	17,05	21,60
2012	19	152	51	846	37,25	17,97
2018	19	182	73	972	26,03	18,72
Agriculture						
1998	5	19	729	307	0,69	6,19
2006	7	27	808	390	0,87	6,92
2012	0	8	475	433	0,00	1,85
2018	0	17	695	456	0,00	3,73
Services						
1998	240	472	401	977	59,85	48,31
2006	353	673	510	1401	69,22	48,04
2012	466	827	619	1790	75,28	46,20
2018	339	603	648	1984	52,31	30,39

(b) Jordan						
	The number of female executives	The number of male executives	Total number of female employees	Total number of male employees	The share of female executive as of total number of female executives, %	The share of male executive as of total number of male executives, %
Total economy						
2010	523	910	5651	5552	9,25	16,39
2016	632	1047	7671	7742	8,24	13,52
Manufacturing						
2010	15	110	86	794	17,44	13,85
2016	25	114	77	836	32,47	13,64
Agriculture						
2010	0	5	149	163	0,00	3,07
2016	0	6	97	228	0,00	2,63
Services						
2010	508	795	5416	4595	9,38	17,30
2016	607	927	7497	6678	8,10	13,88

(c) Tunisia						
Year	The number of female executives	The number of male executives	Total number of female employees	Total number of male employees	The share of female executive as of total number of female executives, %	The share of male executive as of total number of male executives, %
Total economy						
2014	137	276	5330	4830	2,57	5,71
Manufacturing						
2014	9	47	1350	727	0,67	6,46
Agriculture						
2014	0	4	652	642	0,00	0,62
Services						
2014	128	225	4543	3461	2,82	6,50

Table A3. The share of women employees as of total employment, %

Country Egypt	Total, %		Industry, %		Agriculture, %		Services, %	
	Female	Male	Female	Male	Female	Male	Female	Male
1998	54.57	45.43	9.96	90.04	70.37	29.63	29.10	70.90
2006	52.09	47.91	13.02	86.98	67.45	32.55	26.69	73.31
2012	50.40	49.60	5.69	94.31	52.31	47.69	25.70	74.30
2018	49.43	50.57	6.99	93.01	60.38	39.62	24.62	75.38
Country Jordan								
2010	50.44	49.56	9.77	90.23	47.76	52.24	54.10	45.90
2016	49.77	50.23	8.43	91.57	29.85	70.15	52.89	47.11
Country Tunisia								
2014	52.46	47.54	65.00	35.00	50.39	49.61	56.76	43.24

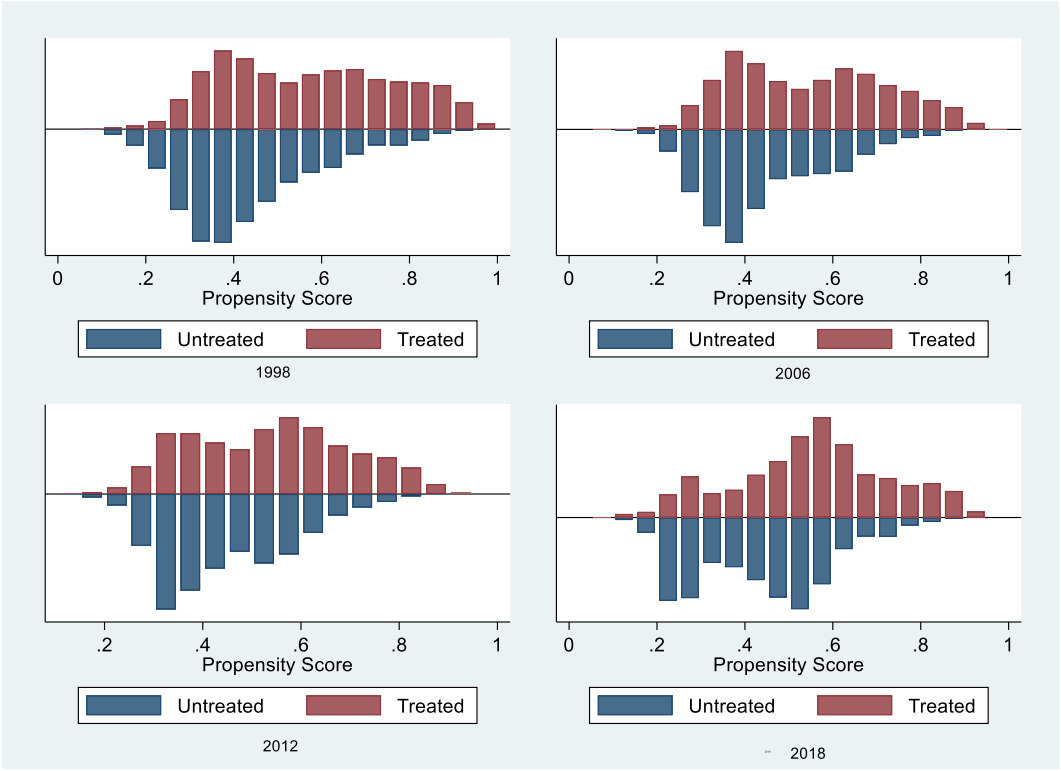

Figure A1. The Propensity Score Matching Scores for the Egypt according to years

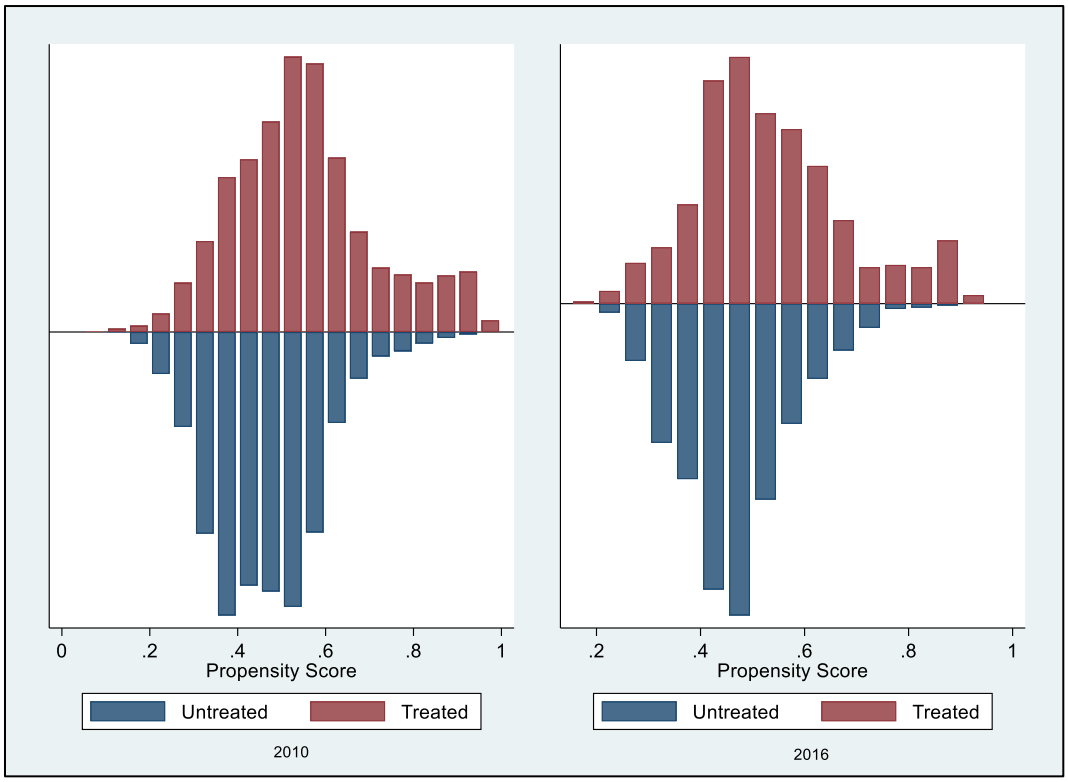

Figure A2. The Propensity Score Matching Scores for the Jordan according to years

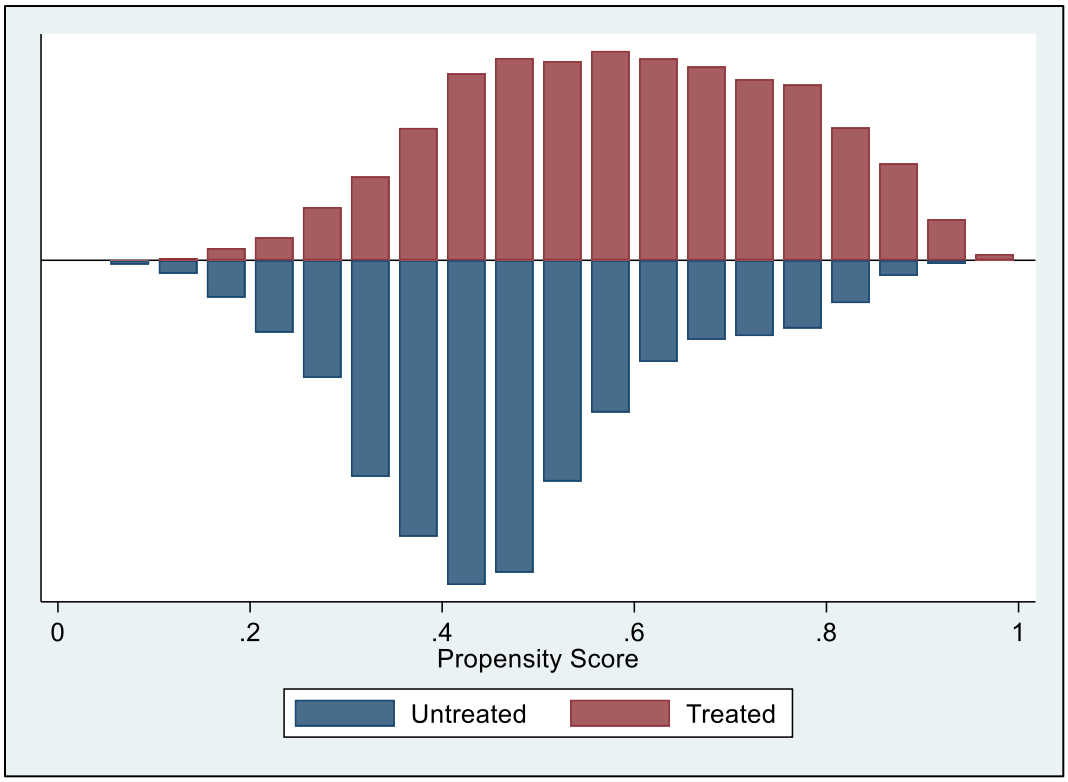

Figure A3. The Propensity Score Matching Scores for Tunisia