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Skill Mismatch, Nepotism, Job Satisfaction, and Young Females in the MENA Region

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Abstract: Skills utilization is an important factor affecting labor productivity and job satisfaction. This paper examines the effects of skills mismatch, nepotism, and gender discrimination on wages and job satisfaction in MENA workplaces. Gender discrimination implies social costs for firms due to higher turnover rates and lower retention levels. Young females suffer disproportionality from this than their male counterparts, resulting in a wider gender gap in the labor market at multiple levels. Therefore, we find that the skill mismatch problem appears to be more significant among specific demographic groups, such as females, immigrants, and ethnic minorities; it is also negatively correlated with job satisfaction and wages. We bridge the literature gap on youth skill mismatch's main determinants, including nepotism, by showing evidence from some developing countries. Given the implied social costs associated with these practices and their impact on the labor market, we have compiled a list of policy recommendations that the government and relevant stakeholders should take to reduce these problems in the workplace. Therefore, we provide a guide to address MENA's skill mismatch and improve overall job satisfaction.

Keywords: women nepotism; skill mismatch; job satisfaction; social costs; MENA countries

JEL Classification: F22; G18; N25; O16

1. Introduction

Skill mismatch refers to the gap between the skills needed for specific jobs (typically required by the employers) and those possessed by job seekers, a mismatch between skills and job requirements. Skill mismatch is one of the significant labor market challenges identified by the International Labor Organization (ILO) and has an insidious effect on the functionality of the labor market, employment levels, economic growth rates, and wages (Wolbers 2003). More specifically, skill mismatch manifests a precarious challenge to labor markets due to resource misallocation and the unproductive nature of some educational expenditures. This could significantly scale back the functionality of the labor market and may jeopardize any revitalization efforts (Hojda et al. 2022).

In fact, public policy debates have been tackling this issue by addressing the suitability of expenditures on education and vocational training schemes in some economies (Allen and De Weert 2007; Kouatli 2019). Consequently, job seekers may have fewer or more skills than jobs require, lowering their chances of obtaining these jobs and thus, negatively impacting the economy, society, and individuals. Nepotism can be a contributing cause to skill mismatch if some unqualified workers are hired. More specifically, family connections are prevalent in the hiring process (Mulder 2008). This could negatively affect many workers when it comes to their income, career development, companies' experiencing

lower labor productivity, and compromised work quality, sometimes leading to loss of employment. These usually result in subsequent firm and employee (social) losses.

Studies have shown that the skill mismatch occurs when required skills are different from the workers' education and have documented high youth unemployment in the Middle East and North Africa (MENA) region (Arayssi et al. 2019; Assaad et al. 2018; Kawar and Tzannatos 2013; Dibeh et al. 2019; Fakih et al. 2020; Roudi-Fahimi and Moghadam 2006). Despite this important coverage in the labor literature, studies have rarely focused on the labor market challenges of young females compared to those of young males in MENA. Understanding the implications of the institutional quality of youth laborers became more prominent after the Arab Spring (Coutts et al. 2019; Fakih and Khayat 2022; Fakih et al. 2022; King 2021). Before the Arab Spring, protectionism swept the MENA region against the ruling elites and their inability to implement necessary economic reforms to ensure harmony, legitimacy, and the sustainability of the prevailing social contract (Ahmed et al. 2022; Arayssi et al. 2020; El-Khalil and Mezher 2020; Fakih and Ghazalian 2021). The politically connected segment of the population (politicians are no strangers to hiring relatives, see (Geys 2017) secured excessive benefits, while the educated youth could not obtain opportunities commensurate with their educational attainment (Sarouphim and Issa 2020). Even more, lower-middle-income youth have struggled to provide the basics (Alawad et al. 2020). Further, many researchers suggest that youth unemployment is one of the main drivers behind the popular revolts in many Arab countries. With the shifting motivations post-Arab Spring, some regimes in the MENA appear to have somewhat grasped this message by addressing such an issue (El-Haddad 2020; Salamey 2019).

On top of the damaging effect of skill mismatch on the MENA region, female workers have globally been encountering several difficulties in the labor market, including skill mismatch, lower educational attainment, social constraints on female's ability to have access to equal opportunities, and discrimination in the workplace (David and Nordman 2017). For example, the 2008 financial crisis coincided with a 9% increase in female unemployment in North Africa (David and Nordman 2017). It is worth noting that the MENA female participation rate is among the lowest in other economic regions (David and Nordman 2017). More specifically, 75% of Arab females are still excluded from the labor force, and young women remain immensely vulnerable segments of the labor market, with 44% (outside of the 75% who are excluded) of those actively seeking employment still being unemployed (David and Nordman 2017). In other words, a significant proportion of those females excluded from the labor market (slightly less than half of those excluded from the labor market) actively seek opportunities, propelling the discussion over the barriers this segment of the population faces when trying to obtain opportunities. A 2014 United Nations report estimated female participation rates in MENA labor markets and concluded the following results: 13.6% in Syria, 15% in Iraq, 15.4% in Algeria, 15.7% in Palestine, 15.8% in Jordan, 23.7% in Lebanon, and 26.7% in Morocco. These numbers signal a fundamental flaw that needs to be dealt with if public policy efforts to reform MENA labor markets are to be robustly assertive and severe. Female youth (aged 15 to 24) include almost twice as many illiterates as their male counterparts (Roudi-Fahimi and Moghadam 2006). Woetzel et al. (2017) argue that women's economic advancement could substantially increase the global Gross Domestic Product (GDP) by 12 trillion dollars by 2025. A similar study by the International Monetary Fund reports that an additional 1 trillion dollars' worth of goods and services could have been produced if the MENA region's policymakers had seriously addressed narrowing down the gender gap between 2000 and 2011 (Abi Akl 2023; Bouri et al. 2020; Dah et al. 2020; Karaki 2020; Skulte-Ouaiss and Mourad 2023).

Youth unemployment is more severe in developing countries due to income levels and the prevalence of great poverty, which forces nearly all family members to work to guarantee subsistence (ILO 2011). Although no gender gap in the youth education level was found in Jordan, Alawad et al. (2020) show that gender-related dissimilarities remain substantial in Jordan's labor market participation, discriminating against young females. They also find that having a university degree and marital status were significant basic

factors, demonstrating that married youth were more likely to be employed rather than unemployed. According to the 2002 Arab Human Development Report, the educational system often fails to train job seekers to analyze information or think innovatively, thereby adding to the skill mismatch and employability issue (Kertechian et al. 2022; Salamey 2021).

Gender discrimination is often cited among the significant obstacles facing firm productivity and growth, particularly in developing and MENA countries (Adebayo et al. 2022; Almeida and Aterido 2011). When asking firms why they hire fewer women, skill mismatch was a fundamental justification of their hiring practices. Consequently, women and youth generally endure higher levels of unemployment, leading firms to incur significant candidate search costs (O'Sullivan et al. 2011). This also causes higher turnover rates since women assume most of the household and childcare chores (Hersch 1991). Nepotism is widespread in this region and may reduce job satisfaction and worker productivity (AlChaer and Issa 2020; Yavuz et al. 2020). Even though high levels of education have characterized the MENA region labor markets, these levels have not necessarily been reflected in higher wages or better economic performance (El-Kassar et al. 2020; El Kallab and Terra 2020; Abdo Ahmad and Fakih 2022), signaling a systematic flaw in appropriately channeling these skills to their best use. Thus, skill mismatch significantly constrains employment in the MENA region and requires further interrogation. For instance, Fakih and Ghazalian (2015) find that skill mismatch places a significant constraint on economic growth and job creation in the Arab Mediterranean countries, whose populations are relatively young compared to other regions; it also causes multiple effects on the labor market, including brain drain (migration) and lower job satisfaction and wages.

This paper examines the relationship between skill mismatch, wage, and job satisfaction among young females in the MENA region, utilizing the SAHWA Youth Survey (2016), a microeconomic survey covering a comprehensive set of questions and aspects regarding Arab youth in Algeria, Morocco, Egypt, Lebanon, and Tunisia. This paper contributes one of the few in-depth analyses of the impact of skill mismatch on wage and job satisfaction specific to young female MENA workers. There are two major findings: first, that a poor match between available and required skills strongly affects job satisfaction negatively, and second, female workers are particularly disadvantaged by nepotism and the overall labor market practices. Despite their educational level, their participation in the labor market remains limited and their wages are lower than their male counterparts. Studies have rarely focused on the labor market challenges of young women in comparison to young men in MENA. Therefore, the results of this paper analyze critical labor practices and suggest a policy guide that would help promote equality and reduce the skill mismatch in the workplace in the MENA region.

The paper is organized as follows. Section 2 briefly reviews previous evidence regarding the impact of skill mismatch on several labor market outcomes and calculates the adjustment costs of having such a conundrum. Section 3 describes the data and the modeling approach used in this paper. Section 4 presents the empirical findings and Section 5 concludes.

2. Related Literature

This section summarizes previous studies before embarking on the empirical analysis in the sections below. The literature examines the effect of overeducation and skill mismatch on employment, wages, and job satisfaction. Previous evidence also breaks down the analysis according to demographic groups, professions, and immigration status, when applicable. Moreover, skill mismatch is more prevalent among immigrants and vulnerable segments of the population in many geographical areas around the world. Furthermore, migrants usually possess skills that are not readily transferable in the labor market and, thus, must either validate their credentials and/or accept jobs that may not be relevant to their current skills and qualifications. Therefore, this exacerbates the skill mismatch problem among migrant workers.

Wolbers (2003) defined skill mismatch as a vertical mismatch in terms of having overeducation, undereducation, over-skilling, or under-skilling. A horizontal mismatch occurs when a worker is employed in a different field than the one they studied or obtained vocational training in (Schweri et al. 2020). Furthermore, some economies in the MENA region have been characterized by high levels of skilled labor, yet these high skill levels have not been reflected in wage levels. In other words, domestic economies have not adequately absorbed these skills due to a lack of job opportunities, a lack of investments in infrastructure, and economic recessions (Al-Nasser Abdallah et al. 2020; Abosedra et al. 2020; Gyamfi et al. 2022).

It is worth mentioning that the effect of skill mismatch was more profound among females due to the greater discrimination and certain impediments to accessing labor markets, especially for certain professions (Al-Shaer and Harakeh 2020). For instance, Alazzawi and Hlasny (2022) investigated the female presence in the labor market in Egypt, claiming that the notable increase in women's education surpassing the education of males had not been commensurate with an increase in labor market participation. Additionally, males were more likely to have academic publications than females (Boutros and Fakih 2022). This is another signal to show that the skills obtained by females in the MENA region are not necessarily being utilized in the best way possible, partly due to the skill mismatch problem. Additionally, data from Jordan have proven that men benefit from a higher return on their education, standing at almost 7 percent per extra year of education, whereas women receive around 5.5 percent (Alshyab et al. 2018).

In addition to gender, a major determining factor in causing skill mismatch, immigration status was the main driver for this issue (Dibeh et al. 2019; Akhtar et al. 2023). More specifically, immigrants nowadays face unprecedented challenges in being able to practice their professions in the receiving economies. In this regard, Tani and Bacon (2022) suggested that immigrant workers suffer from high levels of skill mismatch due to their inability to obtain occupational licensing and exams required to receive state certifications. This has led to major issues in integrating immigrant workers into the labor market; for example, medical doctors with years of experience work in unskilled professions due to a lack of occupational certifications. Overeducation seems to be a major issue among workers who suffer from skill mismatch. In this regard, Kaki et al. (2022) examined the skill mismatch issue in the job market by analyzing the human resources perspective. They also examined the level of education for agricultural high school diploma holders (DEAT) and agricultural tertiary education diploma holders. The study concluded that overeducation was a significant challenge for graduates approaching their first job. Defenders of this theory contend that high youth joblessness, contrasted with other age bunches, occurs due to human resources-related reasons and coping with labor market changes. Considering the effect of skill mismatch on wage levels, Di Pietro and Urwin (2006) argued that overeducation was negatively correlated with wage level by examining the impact of overeducation on wage levels and employment among Italian graduates. Moreover, Rycx et al. (2022) find that over-educated PhD holders face a wage penalty between 25 and 13.5% when compared to well-matched counterparts. The paper's findings also show that the overeducation wage penalty is significantly higher for PhD holders who are both overeducated and over-skilled, especially when coinciding with job dissatisfaction (Cultrera et al. 2022). Similarly, Kampelmann et al. (2020) suggest that undereducation is associated with lower firm profits, whereas higher firm profits and overeducation correlate with positive economic outcomes. They corroborate that the impact of undereducation varies in different sectors characterized by low uncertainty but has a stronger effect in high-tech/knowledge industries. Furthermore, Chuang and Liang (2022) argued that skill mismatch was highest among workers involuntarily changing jobs due to economic downturns or declining occupations. This nevertheless greatly vanishes as people advance in their careers and gain more experience.

On the other hand, there is a strain of studies that have different findings when it comes to the skill mismatch's effect on wages. These studies have found that skill shortages positively affect wages due to the low labor supply. In this regard, Allen and De Weert (2007)

scrutinized the suitability of higher education for the jobs available in the labor market in several European countries and Japan, concluding that labor markets in Germany and the UK surprisingly showed a positive wage effect resulting from skill shortage. This is largely due to a tight labor market and more fierce competition over certain jobs and specific skills, incentivizing employers to offer more competitive compensations for the desired skills. Khalil (2020) found that large business schools that offer doctorate degrees and are involved in international academic agreements or associations tended to be more receptive to quality assurance execution, in line with Nassereddine (2018). Nauffal and Skulte-Ouaiss (2018) and Aly et al. (2023) found that quality higher education, especially that which provides soft skills and internships, increased the potential of graduates to find their first jobs.

In addition to the effect of skill mismatch on wage levels, several studies that discuss the effect of skill mismatch on job satisfaction are briefly summarized here. Allen and De Weert (2007) empirically argued that job satisfaction was heavily influenced by educational attainment and skill mismatch. Their paper suggested that the best results for job satisfaction were reported in countries with educational systems geared to the respective labor market. Furthermore, Chuang and Liang (2022) examined the relationship between skill mismatch and formal education. The authors concluded that skill mismatch was a significant factor in job satisfaction. Hence, skill mismatch seriously undermines job satisfaction, negatively influencing productivity and incentivizing workers to seek employment opportunities where their skills can be utilized more suitably (El Chaar 2022; Helou 2022; Ibrahim 2022).

Kim and Choi (2018) showed that PhD holders in the Korean labor market immensely suffered from job mismatch, negatively impacting job satisfaction and pay level, due to several challenges, including skill mismatch and the inability to apply acquired skills to their professional careers. Groot and Maassen van den Brink (1999) also diligently scrutinized the relationship between skill mismatch and job satisfaction. They claimed that low job satisfaction resulted in early retirement.

The following strain of studies in this literature review addresses the skill mismatch among specific demographic groups. The prevailing situation in the MENA region is no different; according to Assaad et al. (2018), the slow and relatively stagnant participation of women in the labor force stemmed from the structure of the labor demand. They stressed the role of disparities between the skills available on the one hand and the skills needed in the market on the other. Mukherjee and Paul (2012) attempted to examine the skill mismatch in the Indian labor market by employing a probit estimation to examine the skill mismatch problem among different identity groups. The authors concluded that all demographic segments have substantial skill mismatch rates between 13 and 19 percent. Furthermore, their paper identified that skill mismatch varied across societal groups, sexes, and places of residence.

Guvenen et al. (2020) argued that mismatch was a fundamental determinant of wages and could have a long-lasting effect on workers' long-term wages and ability to accumulate capital. The study also showed that social skills behaved differently than technical skills in affecting skill mismatch, especially in increasing or decreasing skill mismatch. The paper's findings suggest that skill mismatch affects earning and, thus, lifetime capital accumulation, in line with Kazandjian et al. (2020). Doruk and Pastore (2022) concluded that skill mismatch varied among females in the labor market and at various levels of training and education. Furthermore, area of residence was a significant factor in determining the level of skill mismatch because it affects education, job opportunities, networking, and job placement. It is worth noting that area of residence is a strong indicator of socioeconomic background and, in some cases, the ramifications of these demographic segments, including being able to advance professionally without significant challenges. Dibeh et al. (2018) examined the skill mismatch problem among Lebanese youth, concluding that the skill-mismatch perceptions were mainly driven by being male, being single, having received post-secondary education, and belonging to upper and middle social classes. The authors

presented a policy recommendation section for public policymakers in Lebanon to tailor the market based on needs and to set out general objectives for training and schooling.

It can be seen how skill mismatch is prevalent among certain demographic groups and professions more than others. Moreover, migrant workers and workers displaced from declining industries seem to have long been suffering from this issue (Bdeir et al. 2022). As a result, prolonged skill mismatch could lead to joblessness and low employment, having overall long-term damage to the livelihood of some workers (Fakih et al. 2020).

In looking for remedies for joblessness, Sunata and Özdemir (2021) focused on the necessity of involving the private sector in educating Syrian refugee children in Turkey, specifically in language education, relative to global refugee governance; this can lead to fewer skill mismatches among refugees when they are ready to enter the labor force (Awada 2021; Brun and Shuayb 2020; Coban 2023; Crul et al. 2019; El Khoury and Ardizzola 2021; Greaves et al. 1999, 2019; EL Kaissi 2023; Kanafani 2023; Kelcey 2019; Kelcey and Chatila 2020; Shuayb and Crul 2020). Uduji and Okolo-Obasi (2021) examined Nigeria's multinational oil companies' initiatives on the migration of rural youths; one implication of their study showcases that these companies' intervention in youth development initiatives, creating jobs and providing financial support for local entrepreneurs, could deter such a migration (Mazzetto and El-Khoury 2020; Pollock et al. 2019).

3. Methodology

3.1. Data and Variables

We use a unique dataset extracted from the SAHWA Youth Survey (2016), which consists of novel and rich data covering five major MENA countries, Lebanon, Egypt, Tunisia, Algeria, and Morocco. The sample size is around 10,000 youth Arab respondents, mainly designed to be nationally representative of youth aged between 15 and 29 years in each of the five countries. The questionnaire covers the following themes: gender issues, socioeconomic factors, education, skills mismatch, institutional issues, household characteristics, political engagement, cultural values, and the Arab Spring (Haj Youssef et al. 2020).

The questionnaire helps to examine the impact of the skill mismatch problem in the MENA region on wages and job satisfaction. The dependent variables are wages and job satisfaction. Wages are the observed wages of youth reported in the last month, whereas job satisfaction is a binary variable equal to one if the youth is satisfied and equal to zero otherwise. As for the independent variable, we use the skill mismatch variable, our key independent variable; it is equal to one if the respondent perceives a skill mismatch problem and zero otherwise. We use various characteristics related to youth. First, socioeconomic characteristics include a binary variable for male; binary age variables whether age is between 15 and 19, 20 and 24, or 25 and 29; a binary variable for being married; and three binary variables characterizing education level: one for having no education, one for having studied in a school, and one for having obtained a university education. Second, labor market variables include a binary variable for vocational training, a binary variable for being self-employed, a binary variable for having a job insured by the social security system, and a non-binary variable for age during first job. Additionally, in the same category of variables, we display a binary variable that captures whether the person is actively seeking alternative employment; three binary variables for type of employment contract, namely whether employed in a permanent position, fixed-term assignment, or verbal; another binary variable that assesses the perception of wage equality for genders termed 'labor market equality'; a binary variable that measures nepotism; and lastly, two binary variables for the language of education, one for each the English and the French languages. The last category is the area of residence: a binary variable that captures whether someone lives in an urban area.

3.2. Sample Characteristics

Table 1 contains summary statistics of the entire sample utilized in our empirical models. We noted that 22% of youth in the MENA countries are satisfied with their jobs. Among the youth who responded to the survey, 25% reported skill mismatch. Socioeconomic determinants show that 54% of youth respondents are male and 23% of the respondents are married. Our empirical work groups the respondents into three categories based on age. We find that 34% are between 15 and 19, 35% are between 20 and 24, and 31% are between 25 and 29. Most respondents had a high school education as the highest attainment (69%), followed by a much lower figure for university education (27%). Labor market factors showed that 7% of respondents have had vocational training. Additionally, 26% of respondents were self-employed and 10% were insured by the National Social Security Fund (NSSF). The average age during the first job was 18 years old, 10% of respondents were looking for another job, 4% of respondents had a permanent position, 3% had a term job, 14% had a verbal contract, and 86% of respondents perceived the labor market as being equal. We found that 91% of the respondents reported nepotism as an issue, revealing a perception of a widespread practice of employing family members, even though the common reaction to nepotism was that it was undesirable and should be avoided. However, nepotism can benefit firms as long as it is practiced in tandem with merit bases (Bellow 2003). Moreover, our sample consisted of employees in the public and private sectors, except for the self-employed, who comprised only 26% of the total. With respect to the language of education, 15% of respondents were French language-educated, and 9% were English language-educated.

Table 1. Summary Statistics.

	Mean	Standard Deviation
Dependent variables		
Job satisfaction	0.22	0.41
Wage	340.89	548.40
Independent variables		
Skill mismatch	0.25	0.44
Male	0.54	0.50
Age: 15–19 years	0.34	0.47
Age: 20–24 years	0.35	0.48
Age: 25–29 years	0.31	0.46
Married	0.23	0.42
Education level: No education	0.04	0.19
Education level: School	0.69	0.46
Education level: University	0.27	0.44
Vocational training	0.07	0.26
Urban	0.61	0.49
Job sector: self-employed	0.26	0.44
Job insured by the social security system	0.10	0.30
Age at first job	18.53	4.22
Searching another job	0.10	0.29
Type of contract: indefinite	0.04	0.21
Type of contract: fixed-term	0.03	0.17
Type of contract: verbal	0.14	0.35
Gender equality in labor market	0.86	0.35
Nepotism	0.91	0.29
Language of education: French	0.15	0.36
Language of education: English	0.09	0.28
N	9860	

3.3. Modeling Approach

Let JS_i^* denote the degree of job satisfaction among the surveyed youth $i(i = 1, \ldots, I)$ residing in area $g(g = 1, 2)$, being either rural or urban. However, JS_i^* is a latent variable that is not present in the data. Thus, we resort to using a probit model, and the empirical analysis examines the impact of skill mismatch on job satisfaction among young females in the MENA region. The probit model can be presented as follows:

$$JS_i^* = S_i\beta + L_i\alpha + R_g + u_i$$

where the probit rule is:

$$JS_i = \begin{cases} 1 & \text{if} \quad JS_i^* \geq 0 \\ 0 & \text{if} \quad JS_i^* < 0 \end{cases}$$

where JS_i is the dependent variable defined as binary variable equal to one if the youth is satisfied and equal to zero otherwise for a youth $i = \{1, \ldots, N\}$. The explanatory variables are the socioeconomic factors (S_i), labor market factors (L_i), area of residence (R_g), and u_i is the error term, which follows a normal distribution. Finally, β_i are vectors of parameters to be estimated.

To estimate the latter probit model, we use the cumulative standard normal distribution function presented as follows:

$$JS(JS_i \mid S_i, L_i, R_g) = \Phi(S_i\beta + L_i\alpha + R_g)$$

4. Empirical Results

This section discusses the estimated marginal effects of the probit model that is presented in Tables 2–5.

Beginning with Model 1 in Table 2, we showed the effect of socioeconomic factors and area of residence only on job satisfaction; we found that gender, marital status, and age were all positively and significantly correlated with job satisfaction. It seems that skill mismatch reduced job satisfaction, in agreement with the findings of Alazzawi and Hlasny (2022). Skill mismatch deteriorated job satisfaction, likely through different mechanisms for under-skilled or over-skilled workers. Additionally, vocational training and place of residence (i.e., whether the person lives in an urban area or not) were positively correlated with job satisfaction.

Model 2 showed the effect of labor market characteristics on job satisfaction. The number of observations is reduced when job characteristics are spelled out in this model. Furthermore, the independent variables of this model captured activity sectors all positively and significantly correlated with job satisfaction. These sector-specific variables included health services, education, trade, other commercial services, and administration of non-commercial services. Model 3 combined the previous models by including socioeconomic variables, area of residence, and labor market variables. In this model, living in an urban area (in line with Doruk and Pastore 2022) and having social security insurance positively correlated with job satisfaction.

Model 4 incorporated more variables related to the market's institutional setup, including the language of education, labor market equality, and nepotism. This model showed that marital status, living in an urban area, and having social security insurance positively and significantly correlated with job satisfaction. Additionally, verbal contracts and searching for another job were negatively correlated with job satisfaction.

Table 2. Job Satisfaction, main results (probit model, marginal effects).

	(1)	(2)	(3)	(4)
Skill mismatch	−0.025 ***	−0.050 **	−0.048 **	−0.041 **
	(0.01)	(0.021)	(0.021)	(0.021)
Male	0.185 ***		0.018	0.021
	(0.008)		(0.023)	(0.023)
Age: 15–19 years	0.140 ***		−0.003	0.001
	(0.013)		(0.028)	(0.028)
Age: 20–24 years	0.324 ***		0.03	0.036
	(0.014)		(0.029)	(0.029)
Married	0.070 ***		0.036 *	0.039 **
	(0.011)		(0.019)	(0.019)
Education level: School	−0.019		0.09	0.107
	(0.044)		(0.074)	(0.075)
Education level: University	−0.03		0.094	0.091
	(0.042)		(0.064)	(0.064)
Vocational training	0.088 ***		0.008	0.014
	(0.019)		(0.026)	(0.026)
Urban	0.029 ***		0.045 **	0.039 **
	(0.009)		(0.019)	(0.019)
Job sector: self-employed		0.001	−0.01	−0.02
		(0.03)	(0.03)	(0.029)
Job insured by the social security system		0.140 ***	0.132 ***	0.129 ***
		(0.02)	(0.021)	(0.021)
Age at first job		−0.003	−0.005	−0.005 *
		(0.002)	(0.003)	(0.003)
Searching another job		−0.413 ***	−0.412 ***	−0.402 ***
		(0.02)	(0.02)	(0.02)
Type of contract: fixed-term		−0.009	−0.007	0.001
		(0.036)	(0.036)	(0.036)
Type of contract: verbal		−0.052 ***	−0.047 **	−0.046 **
		(0.02)	(0.02)	(0.02)
Industry		0.051	0.037	0.036
		(0.032)	(0.033)	(0.033)
Construction		−0.02	−0.039	−0.038
		(0.037)	(0.038)	(0.038)
Health Services		0.135 ***	0.119 ***	0.123 ***
		(0.034)	(0.038)	(0.037)
Education		0.107 ***	0.092 **	0.091 **
		(0.034)	(0.039)	(0.039)
Trade		0.081 ***	0.066 **	0.066 **
		(0.028)	(0.03)	(0.03)
Other Commercial Services		0.066 **	0.048	0.044
		(0.029)	(0.031)	(0.032)
Administrative Non-Commercial		0.082 **	0.063 *	0.061 *
		(0.032)	(0.035)	(0.035)
Gender Labor Market Equality				0.062 **
				(0.026)
Nepotism				−0.038
				(0.029)
Language of education: French				0.036
				(0.024)
Language of education: English				0.099 ***
				(0.028)
Constant				
N	9482	2847	2847	2847

Notes: Job satisfaction is the dependent variable. Robust standard errors in parentheses, with * emphp < 0.10, ** emphp < 0.05, *** emphp < 0.01.

Table 3. Wage model, main results (in logarithms, OLS model).

	(1)	(2)	(3)	(4)
Skill mismatch	−0.279 ***	−0.223 ***	−0.202 ***	−0.183 ***
	(0.054)	(0.055)	(0.053)	(0.050)
Male	0.166 ***		0.245 ***	0.250 ***
	(0.060)		(0.061)	(0.058)
Age: 20–24 years	0.195 **		0.126	0.204 ***
	(0.078)		(0.079)	(0.075)
Age: 25–29 years	0.682 ***		0.425 ***	0.515 ***
	(0.077)		(0.082)	(0.078)
Married	−0.446 ***		−0.446 ***	−0.391 ***
	(0.057)		(0.055)	(0.053)
Education level: School	−0.142		−0.195	−0.199
	(0.193)		(0.190)	(0.188)
Education level: University	0.240		−0.040	−0.252
	(0.199)		(0.199)	(0.194)
Vocational training	0.076		0.080	0.129 **
	(0.064)		(0.062)	(0.061)
Urban	0.418 ***		0.247 ***	0.182 ***
	(0.052)		(0.052)	(0.050)
Job sector: self-employed		0.140 *	0.150 **	−0.029
		(0.075)	(0.075)	(0.071)
Job insured by the social security system		0.408 ***	0.327 ***	0.258 ***
		(0.069)	(0.068)	(0.065)
Age at first job		0.052 ***	0.033 ***	0.029 ***
		(0.007)	(0.008)	(0.007)
Searching another job		−0.346 ***	−0.405 ***	−0.330 ***
		(0.051)	(0.049)	(0.048)
Type of contract: fixed-term		−0.294 ***	−0.274 ***	−0.229 ***
		(0.068)	(0.065)	(0.059)
Type of contract: verbal		−0.488 ***	−0.408 ***	−0.392 ***
		(0.063)	(0.062)	(0.060)
Industry		0.144	0.155	0.136
		(0.109)	(0.108)	(0.104)
Construction		0.261 **	0.232 **	0.215 **
		(0.108)	(0.106)	(0.104)
Health Services		0.075	0.121	0.061
		(0.149)	(0.144)	(0.137)
Education		0.168	0.206	0.086
		(0.133)	(0.138)	(0.136)
Trade		0.444 ***	0.396 ***	0.326 ***
		(0.105)	(0.104)	(0.099)
Other Commercial Services		0.526 ***	0.468 ***	0.358 ***
		(0.104)	(0.104)	(0.101)
Administrative Non-Commercial		0.387 ***	0.353 ***	0.269 **
		(0.117)	(0.116)	(0.112)
Gender Labor Market Equality				0.002
				(0.062)
Nepotism				0.237 **
				(0.100)
Language of education: French				0.548 ***
				(0.074)
Language of education: English				1.133 ***
				(0.083)
Constant	4.516 ***	3.984 ***	4.014 ***	3.869 ***
	(0.211)	(0.170)	(0.256)	(0.261)
N	2577	2574	2574	2574

Notes: Wage is the dependent variable. Robust standard errors in parentheses, with * emphp < 0.10, ** emphp < 0.05, *** emphp < 0.01.

Table 4. Job satisfaction results by gender (probit model, marginal effects).

	Model 1—Males	Model 2—Females
Skill mismatch	−0.006	−0.161 ***
	(0.024)	(0.049)
Age: 20–24 years	0.005	0.006
	(0.032)	(0.059)
Age: 25–29 years	0.037	0.021
	(0.033)	(0.061)
Married	0.033	0.041
	(0.024)	(0.033)
Education level: School	0.175 *	−0.138
	(0.092)	(0.117)
Education level: University	0.1	−0.067
	(0.071)	(0.126)
Vocational training	0.01	0.021
	(0.032)	(0.041)
Urban	0.039 *	0.047
	(0.023)	(0.038)
Job sector: self-employed	−0.015	−0.039
	(0.038)	(0.04)
Job insured by the social security system	0.172 ***	0.039
	(0.025)	(0.039)
Age at first job	−0.004	−0.005
	(0.003)	(0.005)
Searching another job	−0.410 ***	−0.415 ***
	(0.023)	(0.044)
Type of contract: fixed-term	−0.015	0.048
	(0.047)	(0.044)
Type of contract: verbal	−0.03	−0.071 **
	(0.024)	(0.035)
Industry	0.056	−0.021
	(0.037)	(0.089)
Construction	−0.057	0.045
	(0.042)	(0.093)
Health Services	0.149 ***	0.071
	(0.047)	(0.071)
Education	0.047	0.072
	(0.073)	(0.071)
Trade	0.070 **	0.041
	(0.034)	(0.072)
Other Commercial Services	0.043	0.022
	(0.037)	(0.076)
Administrative Non-Commercial	0.055	0.051
	(0.043)	(0.075)
Gender Labor Market Equality	0.092 ***	−0.043
	(0.029)	(0.046)
Nepotism	−0.04	−0.007
	(0.033)	(0.063)
Language of education: French	0.02	0.053
	(0.03)	(0.037)
Language of education: English	0.115 ***	0.058
	(0.035)	(0.048)
Constant		
N	2110	737

Notes: Job satisfaction, divided by gender, is the dependent variable. Robust standard errors in parentheses, with * emphp < 0.10, ** emphp < 0.05, *** emphp < 0.01.

Table 5. Wage results by gender (in logarithms, OLS model).

	Model 1—Males	Model 2—Females
Skill mismatch	−0.081	−0.583 ***
	(0.052)	(0.126)
Age: 20–24 years	0.187 **	0.368 *
	(0.079)	(0.202)
Age: 25–29 years	0.480 ***	0.705 ***
	(0.080)	(0.221)
Married	−0.422 ***	−0.297 ***
	(0.061)	(0.107)
Education level: School	−0.270	0.320
	(0.174)	(0.785)
Education level: University	−0.446 **	0.566
	(0.183)	(0.786)
Vocational training	0.232 ***	−0.073
	(0.069)	(0.114)
Urban	0.212 ***	0.040
	(0.054)	(0.113)
Job sector: self-employed	−0.031	0.003
	(0.079)	(0.136)
Job insured by social security	0.247 ***	0.250 **
	(0.076)	(0.122)
Age at first job	0.043 ***	−0.020
	(0.008)	(0.018)
Searching another job	−0.302 ***	−0.459 ***
	(0.054)	(0.101)
Type of contract: fixed-term	−0.279 ***	−0.073
	(0.075)	(0.102)
Type of contract: verbal	−0.425 ***	−0.246 **
	(0.068)	(0.125)
Industry	0.103	0.413
	(0.111)	(0.345)
Construction	0.156	0.757 *
	(0.108)	(0.397)
Health Services	0.125	0.217
	(0.146)	(0.370)
Education	−0.156	0.432
	(0.210)	(0.349)
Trade	0.282 ***	0.574 *
	(0.104)	(0.348)
Other Commercial Services	0.340 ***	0.623 *
	(0.107)	(0.343)
Administrative Non-Commercial	0.230 **	0.612 *
	(0.117)	(0.353)
Gender Labor Market Equality	−0.018	0.112
	(0.067)	(0.166)
Nepotism	0.295 ***	−0.030
	(0.113)	(0.212)
Language of education: French	0.529 ***	0.544 ***
	(0.096)	(0.114)
Language of education: English	1.215 ***	0.942 ***
	(0.095)	(0.157)
Constant	3.952 ***	4.096 ***
	(0.252)	(0.936)
N	1903	671

Notes: Wage, divided by gender, is the dependent variable. Robust standard errors in parentheses, with * emphp < 0.10, ** emphp < 0.05, *** emphp < 0.01.

In Table 3, we performed an ordinary linear regression of wages on the set of independent variables. Model 1 included only socioeconomic factors. We found that age, gender

(male), and residing in an urban area positively and significantly correlated with wages. The effect of males on wages was positive and persistent in all models 1, 3, and 4, showing wage discrimination against females. Marital status was negatively related to wages, in line with the result of Tani and Bacon (2022). Model 2 showed that being self-employed, having social security insurance, age at first job, and working in construction, trade, and other commercial or administrative services were positively and significantly correlated with wages. The findings suggested that the older the worker and the higher the age at the first job seemed to benefit the wage, supporting the proposition that years can compensate for human capital, as found in Sicherman (1991). On the other hand, searching for another job, being a term employee, being on a short-term employment contract that typically does not include defined benefits or severance payment, and having a verbal contract were all understandably negatively and significantly correlated with wages.

Model 3 combined the two previous models to study the effect of socioeconomic variables, area of residence, and labor market variables simultaneously on wages. This model shows that gender, age between 25 and 29, living in an urban area, having social security, being self-employed, and age at first job are all positively and significantly correlated with wages. Additionally, sector-specific activity variables in the following sectors: construction, trade, other commercial services, and administration of non-commercial services were all positively and significantly correlated with wages. Being self-employed was only weakly correlated with wages. On the other hand, searching for another job and being a fixed-term and verbal contract employee were negatively and significantly correlated with wages.

Model 4 incorporated a few additional institutional variables: the language of education, labor market equality, and nepotism. This model corroborated that gender, age, vocational training, living in an urban area and having social security, age at first job, nepotism, and both languages of education, namely English and French, were all positively and significantly correlated with wages. Though employees may benefit from nepotism, this practice has also been found to result in increased intentions to quit (Arasli et al. 2006; Arasli and Tumer 2008), thus raising search and retention costs for the employer. Additionally, the same sector's activities, including construction, trade, other commercial services, and administration of non-commercial services, continued to be all positively and significantly correlated with wages. On the other hand, marital status, having a fixed-term and a verbal contract, and searching for another job were all negatively and significantly correlated with wages.

In Table 4, we regressed gender and job satisfaction on our existing set of independent variables. Beginning with Model 1, males with social security, a school education, and sector-specific trade and health services were all positively and significantly correlated with job satisfaction. Model 2 showed that searching for a new job with a verbal contract was negatively and significantly correlated with job satisfaction. The findings also pointed to worse skill mismatch being associated with job satisfaction for women, demonstrated by the absolute value and statistical significance of that coefficient in Model 2, in line with Browne (2000) and David and Nordman (2017).

In Table 5, we found that in Model 1, being male, being between ages 20 and 24, and between ages 25 and 29, having vocational training, living in an urban area, having social security, age at first job, and being French and English educated were all positively and significantly correlated with wages. Comparing Model 2 (females) with Model 1 (Males), it follows that females suffer lower wages due to skill mismatch, in agreement with Alazzawi and Hlasny (2022), reinforcing the discrimination against women in job satisfaction that was found earlier in Table 4, Model 2. Further, females aged between ages 20 and 24, living in urban areas, age at first job, vocational training, and nepotism all had a less significant regression coefficient with wages than their male counterparts, probably making less income with the same qualifications. Particularly interesting is that nepotism does not seem to help females with their wages, contrary to males, in harmony with Bellow (2003). This result may be explained by the successful performance of nepotism beneficiaries' attribution to political skills and relationships with upper management more

than to ability and effort (Nehme et al. 2020; Padgett et al. 2015). If this theory is correct, it remains to be shown that males enjoy more political skills and relationships with upper management than females to justify their benefit from nepotism, as may be hinted at in Carli (2001). Hence, this comparison confirms that females in this region are treated less fairly than their male peers and suffer from higher unemployment, yielding higher social costs for women (Kouatli 2018; Makarem et al. 2019). Additionally, worker inefficiencies imply higher operating and search costs for their employers (O'Sullivan et al. 2011).

Overeducation, as reflected in having a university degree, seems to reduce males' wages and be neutral for females. In either case, overeducation does not help job market participants, including immigrants who cannot afford to obtain state certification for their professional degrees. This is in line with Tani and Bacon (2022). This is mainly due to discrimination in positions requiring continuity, especially since employers may be concerned about commitment and future parental leave (Desatnik et al. 2021).

5. Conclusions and Policy Implications

Skill mismatch is the cause of various economic problems, and its ramifications go beyond labor force issues to affecting the psychological stress of being either over- or under-skilled for the job. People with skill mismatch may reason they spend too much time and effort on their jobs rather than their families and other comforts and are often dissatisfied with their jobs. This mismatch hinders economic growth in many regions, impelling policymakers and academics to shed some light on this issue, particularly among female workers. Specifically, women are more likely to have skill mismatches and often resort to working in the informal sector (Abi Aad and Combs 2021). Hence, they miss out on chances to get more employer-sponsored training, benefits, and education (Khoury 2019). In this regard, some workers are overqualified (Kim and Choi 2018), and their overeducation is associated with lower wages.

This paper concludes that the skill mismatch problem in the MENA region appears to be negatively correlated with job satisfaction, a result in line with Groot and Maassen van den Brink (1999). Given that increased work–life conflict is correlated with lower physical health (Pedersen 2015), skill mismatch has grave consequences for understanding personal by-products, such as worker health. Moreover, skill mismatch appears more severe among specific demographic groups, such as females (as shown in the second model in Table 5), immigrants, and ethnic minorities (Browne 2000). Nepotism is widely practiced and benefits males with higher wages, perhaps because males tend to have stronger political skills and ties to upper management than females. The stronger political skills may originate from the fact that males are inclined to be generally more influential than females (Carli 2001). Furthermore, a university degree may render a worker over-educated for their position and does not help job market participants in general.

The MENA region is no exception concerning this issue. In fact, it has been characterized by low female participation rates in the labor force, implying further educational and social issues that need to be dealt with, including skill mismatches among female workers (David and Nordman 2017). It is worth mentioning that the gender gap has had detrimental effects on economic growth (Jizi et al. 2022) and access to higher education (Saado 2022). Hence, working on reducing skill mismatch, lower educational attainment, social constraints on females' ability to have access to equal opportunities, and discrimination should lead to a welcome political cohesiveness in this tormented region of the world (Achkar and Bouri 2020; Fakih and Sleiman 2022; Srour and Karkoulian 2022). The International Monetary Fund suggests that an additional USD 1 trillion worth of goods and services could have been produced if the MENA region had utterly addressed narrowing the gender gap between 2000 and 2011.

The skill mismatch is measured in this paper as the subjective perception of the respondent to the survey regarding whether it affects their job satisfaction, wage, etc. While this subjective measure can be viewed as a limitation of this study, further research can use a more objective measure of skill mismatch. This can potentially change some of the

results obtained here. The skill mismatch problem and its ramifications require a robust government intervention to redress the economic compass of the economies suffering from skill mismatch (David and Nordman 2017). Skill mismatch can decrease laborers' work residency, which contrarily affects both specialists and managers the same. One system for upsetting this affiliation is forestalling skill mismatch and attempting to guarantee that employees are utilized in places that fittingly use their range of abilities (Tawil et al. 2022). Government intervention should be tailored to mitigate the skill mismatch problem's ramifications appropriately. Whether it is low wages, low job satisfaction, or job discrimination, David and Nordman (2017) propose a policy to better integrate migrants and minorities into the labor market, along with systematically reassessing and redesigning educational policies to make graduating students more suitable for the needs of the labor market in their respective economies.

Given the empirical modeling of this paper, some policy implications are presented to provide a framework for policymakers to address labor market challenges, especially those related to the skill mismatch problem. In particular, the additional social costs associated with a mismatch, job dissatisfaction, nepotism, and overeducation prompt us to suggest a program of remedies that the government, private sector, and respective NGOs should take to reduce these problems workplace. Firstly, given the low job satisfaction of young females, there is a need to integrate them into the labor force by investing in CSR activities (Arayssi and Jizi 2018; El Gammal et al. 2020; El-Kassar et al. 2021), as well as specific vocational training programs targeting youth and females to address the skill mismatch problem (see Sicherman 1991). In doing so, employees would identify and feel more involved with their firm and be more likely to be engaged and satisfied (Kelcey 2019). In addition, it may be beneficial to systematically reform the vocational and post-secondary programs to meet the needs of the labor market, and robustly work on making these programs compatible with the labor market's needs (Lin and Wang 2005). Moreover, the consolidation of investments by the private sector (i.e., local language education for immigrants Sunata and Özdemir 2021; Afolabi Ibikunle et al. 2022; Harakeh 2020) in youth and student employment programs targeting specific sectors can provide a proper pathway for matching skills with appropriate positions.

Secondly, legislative reforms related to gender discrimination, nepotism, and parental leave are required; the latter would undermine the effect of maternal leave, in particular on skill mismatch and job satisfaction among working mothers and their families at large (Al-Abbas and Saab 2022; Christiansen 2019). Thirdly, integrating returning migrants into the labor market is an essential policy implication that should be adopted by reassessing and redesigning the educational policies to make graduating students more suitable for the needs of the labor markets in the respective economies (see David and Nordman 2017; Khansa and Bahous 2021).

Moreover, the lack of jobs at the PhD level has been leading to the deterioration of their skills and possibly to brain drain in the advanced stages of this phenomenon (as in Kim and Choi 2018); this should be addressed in further research by creating think tanks and national research institutes.

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