



Revitalizing Women's Labor Force Participation in North Africa: An Exploration of Novel Empowerment Pathways

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ABSTRACT

This paper explores new pathways to women's empowerment, including household structure, family support, satisfaction and self-esteem, and trust in institutions and politicians, and their impact on labor market participation, with a specific focus on gender differences. Using a microeconomic database of 7,860 individuals from North Africa and employing a Probit model, we find that gender significantly influences labor market participation. Surprisingly, our results reveal that education operates in an unexpected direction in the North African region, confirming the "MENA paradox". Moreover, household structure's impact on labor decisions varies by gender, as gender norms prevalent in male-dominated societies hinder women's labor market participation, leading to a "marriage penalty." In a similar vein, our estimations reveal a significant positive correlation between men's belief that "men should have greater job rights than women during scarce work periods" and their labor force participation, shedding light on the influential role of gender norms in North Africa. Our study emphasizes the critical role of networking, social capital, and how North Africans' perception of political life impedes their labor force participation. As for policy implications, our contribution illuminates new pathways for women's empowerment, advocating for comprehensive legislative reforms to promote gender equality and foster inclusive development.

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1. Introduction

Feminization hypothesis posits that women's participation in the labor force follows a U-shaped trajectory concerning development levels (Goldin, 1995; Tam, 2011). Extensive literature (Alvarez, 2022; Gaddis & Klasen, 2014; Lele, 1986) supports this intriguing relationship, which is attributed to two critical factors. The first factor revolves around the structural transformation of economies (Çagatay & Özler, 1995), whereby labor moves from farms and home-based workshops to businesses. In the initial stages of this transformation, it becomes challenging for women to balance their familial duties and work responsibilities, leading to a decline in their labor market participation. However, as the

economy advances and the agricultural sector's share decreases relative to the service sector, women are presented with more opportunities for quality jobs in businesses. As a result, their labor market participation rate increases, bringing about a positive impact. The second explanation for the U-shaped relationship is the interplay between fertility rates and gender disparities in access to education. As countries develop and fertility rates decline while education becomes more accessible to women, their labor force participation increases (Cheng et al., 1997; Lee & McElwain, 1985; Miah & Mizan, 1992). These two dynamics play a vital role in shaping the labor market's composition and affect women's ability to participate and contribute to the economy (Uberti & Douarin, 2022).

Female labor force participation in North Africa remains the lowest in the world (Figure 1). Some countries, such as Morocco and Egypt, have even shown a downward trend since 2010, by contrast, other regions such as the Euro area and OECD members, have labor force participation rates of around 46% with upward trends. The level of women's labor force participation in North Africa varies significantly across and within the region, with urban and rural areas showing disparate levels. These differences reflect the complex socioeconomic dynamics at play, including the interaction of factors such as cultural norms, educational attainment, and access to employment opportunities.

Labor market imbalances in North Africa (Salehi-Isfahani, 2013) take two forms: exclusion from economic activity and precariousness associated with the activity performed. The former is typically measured by unemployment rates, while the latter is reflected in various indicators related to working conditions. The labor market mirrors the dysfunctions of the region's economy, characterized by inadequate inclusion of women in the workforce (Chapman, 2015), insufficient employment opportunities, and a prevalence of informal work. Informal employment constitutes a significant portion of North African economies, with approximately two-thirds of the region's workforce operating without formal arrangements or social protections. Informal businesses and workers contribute to an estimated

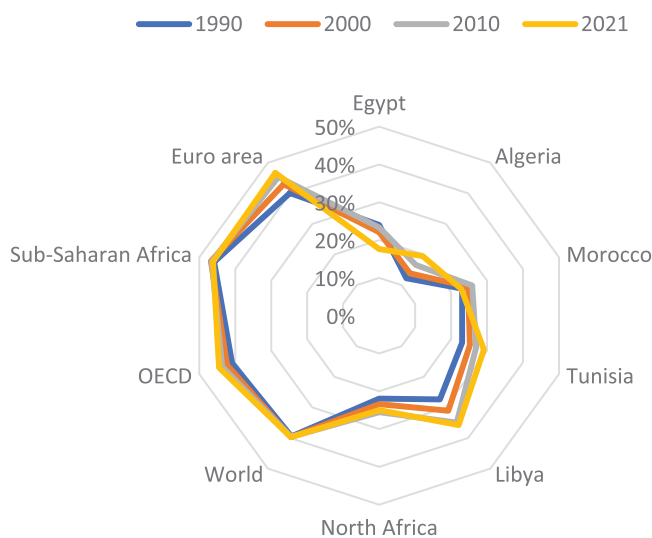


Figure 1. Labor force, female (% of total labor force). Source: Authors' elaboration based on World Bank data.

30% of the GDP. These trends exacerbate the challenges faced by workers and create hurdles for economic growth and development (Cardarelli et al., 2022).

Moreover, the North African region performs very poorly on the gender gap¹ index with rankings above 124 (Tunisia), 132 (Algeria), 134 (Egypt), and 143 (Morocco). The presence of women in several fields remains very limited (political and economic fields), including in the scientific field. According to the World Economic Forum (2020), the gender gap in Middle East and North Africa (MENA) has reached 61.2% to date. This implies that the remaining gap is about 38.8%. At this level, it would take 139.9 years for Middle East and North Africa to close this gap. In principle, this score is attributed to Middle East and North Africa's poor performance in two areas, namely political empowerment and economic participation and opportunity (World Economic Forum, 2020, p. 20).

Social and economic factors have been found to have an impact on a woman's decision to work, while traditional roles and intra-family roles and relationships are significant determinants of the labor market in the MENA region (Clark et al., 1991; Diwan & Vartanova, 2017; Haghghat-Sordellini, 2009; Ingelhart & Norris, 2003; Lassassi & Tansel, 2020). In addition to these factors, education, urbanization, marital status, and economic cycles have been identified as determinants of women's labor market participation (Berber & Eser, 2008). Naqvi et al. (2002) pointed out that the employment status of the head of the household, the number of adult males, the breadwinner, and children under 5 are also important factors affecting women's participation in the labor market. Lopez-Acevedo et al. (2021) suggested that gender roles may push women out of the labor market and slow the recovery of female participation. They found that the education level of the household head (usually men) increases female inactivity in Morocco.

In sum, the issues of women's labor force participation in the North African region has been of great concern to several researchers. What emerges from a careful reading of the literature is that there are two main lines of inquiry, the first being the nature of the relationship between women's labor force participation and economic development (Chapman, 2015; Verme, 2015). A second line of inquiry is one that has sought to identify the determinants of women's labor force participation (Chamlou et al., 2016; Moghadam, 1990). The interplay between women's labor force participation and development level in North Africa is not as straightforward as previously thought - the U-shaped relationship is not always evident. However, it is recognized that women's individual characteristics have a significant impact on their ability to participate in the labor market. Despite this, previous studies that consider North Africa as a laboratory have failed to explore beyond the traditional factors that determine women's labor force participation in North Africa.

This study is poised to make a significant contribution to the existing literature by filling two critical gaps. First, **the literature gap** by exploring for the first-time new avenues of women's empowerment, such as household structure, family support, satisfaction and

¹ 'Gender gap' refers to the disparity between men and women in four main areas, including economic participation, educational attainment, political empowerment, and health and survival. The Global Gender Gap Index methodology consists of four steps: 1) Ratio conversion: Data is transformed into female-to-male ratios, capturing the gaps in achievement levels rather than absolute values. 2) Equality benchmark truncation: Ratios are limited to an equality benchmark, which varies depending on the specific indicator. This process assigns scores based on parity or when women exceed men. 3) Subindex score calculation: Subindexes (Economic Participation and Opportunity, Educational Attainment, Political Empowerment, and Health and Survival) are computed as weighted averages of the underlying indicators. Indicators are normalized to ensure equal influence. 4) Final score calculation: The Global Gender Gap Index score is derived as the average of the subindex scores, ranging from 0 (imparity) to 1 (gender parity). These scores remain consistent over time, enabling tracking of country progress (World Economic Forum, 2020, p. 47).

self-esteem, and trust in institutions and politicians, affect the decision to participate in the labor market by gender. Second, by utilizing micro-level data that provides a rich source of information on labor market dynamics in North Africa, we aim to bridge **the empirical gap** in the literature and provide valuable evidence to support policy decisions. By addressing these gaps, our study promises to advance understanding of the factors shaping labor market imbalances in the region and inform policies to promote women's empowerment. Our contribution has significant policy implications for North African countries, presenting concrete policy recommendations to achieve gender equality and political reform in the region.

The remainder of the paper is structured as follows. Section II provides a comprehensive review of the literature on women's labor force participation determinants. Section III presents the stylized facts about the labor market in North Africa. Section IV is the core of the paper, which investigates the impact of new pathways to empowerment on women's decision to participate in the labor market by gender. Finally, section V concludes the paper by summarizing the main findings, highlighting their policy implications, and suggesting directions for future research.

2. Literature Review

2.1. Underpinning Theory

The human capital theory (Becker, 1993; Mincer, 1974), posits that the extent of female labor supply is primarily determined by their level of human capital endowment. This theory emphasizes the importance of factors such as education, skills, and training in influencing women's participation in the labor market.

In addition to the human capital perspective, feminist theories (Hartmann, 1976; Sacks & Eisenstein, 1979) have provided valuable insights into the issue by highlighting women's subordinate position in society. These theories argue that women's higher involvement in domestic work and their limited time availability for economic activities contribute to their lower labor force participation rates. By taking on a disproportionate share of household responsibilities, women face significant constraints in fully engaging in paid employment.

Another theoretical framework relevant to understanding female labor force participation is the labor and leisure theory (Gronau, 1977). According to this perspective, women make decisions regarding work participation based on a cost-benefit analysis, where the benefits of working, such as wages and personal fulfillment, are weighed against the costs, including time and effort. Real wages play a crucial role in influencing women's labor market decisions. When the perceived benefits of working outweigh the associated costs, women are more likely to participate in the labor force (Blau & Kahn, 2013).

Furthermore, the U-shaped theory provides insights into the relationship between women's labor force participation and the level of development. This theory suggests that female labor force participation follows a declining trend during the early stages of development, followed by a subsequent recovery. Uberti and Douarin (2022) explain this relationship in the literature through two main factors: the structural transformation of economies and fertility dynamics. The process of structural transformation involves the shift of labor from agricultural and home-based activities to formal employment in firms. This transformation enables women to detach themselves from traditional family responsibilities

and facilitates their participation in the labor market. As economies evolve and diversify, women's access to employment opportunities outside the household expands, leading to increased labor force participation rates.

2.2. Empirical Literature

2.2.1. Women Labor Force Participation: The Role of Individual Characteristics

The role of women in the workforce has been impacted by a variety of factors over time, such as age, income, and education. Grossbard-Shechtman (1984) found that income changes have a greater impact on wives' labor supply than husbands. Tunali et al. (2019) have found that women's labor force participation changes as they age, with a distinct 'M-shape' pattern observed in rural areas and among poorly educated women in urban areas.

Education is a significant determinant of women's involvement in the labor force, as it increases the chances of securing better-paying jobs (Chamlou et al., 2016; Spierings & Smits, 2007), with higher levels of post-secondary/university education having the most significant effect. However, despite the positive relationship between female education and participation, Lopez-Acevedo et al. (2021) have observed that this effect has weakened over time and may not be sufficient to overcome other barriers to labor force entry.

2.2.2. Women's labor force participation and family responsibilities

Women's participation in the labor market is impacted by their capacity to juggle multiple activities (Özlem Taşseven et al., 2016). Gornick and Meyers (2005) highlighted the challenge of caring for children and balancing work and family responsibilities. Unfortunately, mothers are often left with no choice but to negotiate with their employers for family leave and reduced work schedules, leading to work-life balance sacrifices. Women with young children are less likely to participate in the labor force if they are married, but more likely to participate if they are single (Gornick & Meyers, 2005). Syed Salleh and Mansor (2022) indicated that married women face significant obstacles due to care responsibilities, and work-family conflicts have impeded their entrance into the job market.

The COVID-19 pandemic has further exposed the precarious situation for mothers in the labor market. Bansak et al. (2022) found that mothers were disproportionately affected due to traditional gender roles, where mothers take on more child-rearing responsibilities. They found that in states with more generous marital property laws for parental caregivers, the labor force participation of mothers of school-age children dropped more than fathers' participation after the onset of COVID-19.

2.2.3. Women's labor force participation and household structure

The relationship between women's labor force participation and household structure has been extensively researched in recent years due to the increasing importance of women's participation in the modern economy. However, the findings of these studies have been mixed, with some studies suggesting that women who are married or living with a partner are less likely to participate in the labor force, commonly referred to as the 'marriage penalty', this is thought to be due to the greater responsibilities at home that often come with being in a relationship (Leuthold, 1984; Sayre & Hendy, 2016).

Other studies have found that marital status does not necessarily affect female labor force participation, but the presence of children can reduce it, particularly in the private sector. In some cases, women who were previously employed in the public sector before marriage are more likely to remain in the labor force. Additionally, it is estimated that the job opportunities for married women who take a career break may be limited, with only a 5% to 28% likelihood of finding full-time work (Assaad & Zouari, 2002; Özlem Taşseven et al., 2016; Ueda, 2008). Overall, the complex relationship between women's labor force participation and household structure warrants further research to better understand the factors that contribute to women's participation in the workforce.

3. Unveiling North Africa's Labor Market Realities: Persistent Gender Inequalities and Discrimination

Labor market participation in North Africa demonstrates significant gender inequalities, including low participation rates for women compared to men, inadequate job opportunities, and a prevalence of informal employment (International Labor Organization (ILO), 2022). Despite advancements in legal frameworks, the region still faces substantial gender disparities and discrimination. Figure 2 illustrates the gender gap index's sub-dimensions in the North Africa region, highlighting economic participation and opportunity and political empowerment as key areas with significant gaps. Although efforts have been made in these domains between 2010 and 2022, progress remains insufficient to achieve gender equality in the North Africa region.

The interaction between unequal opportunities for women and labor market dynamics is a topic of great interest to different economies. This interest stems from the fact that women's employment and entrepreneurship are affected by legal discrimination based on gender. Analysis of the evolution of the sub-indicators (mobility, workplace, wages, marriage, parenthood, entrepreneurship, assets, and retirement) of the Women, Business and the Law Index for countries in the North African region revealed that areas of improvement differ from country to country (Figure 3). In the case of Morocco, over the period 1971–2022, the country achieved significant improvement in the areas of mobility, workplace, wages, marriage, parenthood, and entrepreneurship, all of which had a positive impact on the Women, Business and the Law Index for Morocco. Similarly for Algeria, it registered the same pattern as Morocco with lapses in the areas of entrepreneurship, assets, and retirement. As for Tunisia and Egypt, they showed minimal improvement in areas other than wages and asset ownership, which have seen their scores stagnate since 1971.

4. Labor Force Participation in North Africa: How New Pathways to Empowerment Differentially Impact the Decision to Participate in the Labor Market by Gender

Our research aims to delve deeper into the intricate relationships between new pathways to empowerment and the decision to participate in the labor market, with a particular focus on the impact of gender. We recognize that the traditional determinants of labor market participation such as age, marital status, place of residence, and education level are

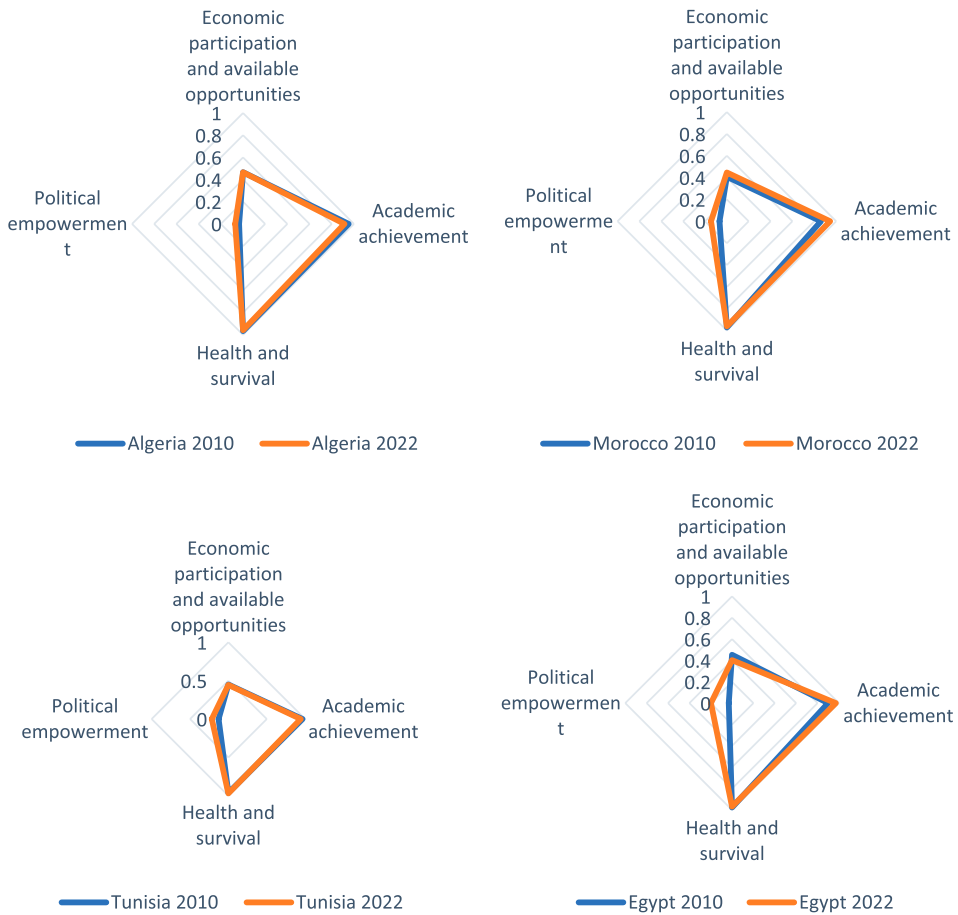


Figure 2. Gender Gap Index dimensions: North Africa. Source: *Global Gender Gap Report 2010, 2022*.

important, but we also understand that these factors do not tell the whole story. Therefore, we aim to investigate the potential impact of alternative factors, such as household structure, family support, satisfaction and self-esteem, and trust in institutions and politicians, on labor market participation.

4.1. Data and Methodology

4.1.1. Data

Data were used in our article is secondary, obtained from the SAHWA project survey conducted in five Arab Mediterranean countries (Algeria, Egypt, Lebanon, Morocco, and Tunisia). The survey was carried out between October and December 2015, and a common questionnaire was administered to around 10,000 youth, covering several aspects such as education, employment and inclusion, political participation and mobilization, values and culture, gender roles and perspectives, migration and international mobility. While Lebanon was included in the survey, we chose to focus our analysis on North African countries and did exclude Lebanon from the dataset. (Table 1)



Figure 3. Women Business and the Law (WBL) index sub-indicators: North Africa. Source: Women, Business and the Law (WBL) Database.

4.1.2. Methodology

We² estimate a Probit³ model in which the dependent variable captures labor market participation (LFP), while controlling the model with other variables on individual characteristics, education level of the individual, household structure characteristics, satisfaction and self-esteem, family support, job scarcity and gender, and trust in institutions. The estimated model is as follows:

$$LFP_i = \alpha_0 + \alpha_k * \sum_{k=1}^7 (Individual\ characteristics)_{k,i}$$

² To capture satisfaction and self-esteem: the individual is asked: 'is he/she satisfied with him/herself overall', question that he/she gives his/her appreciation on a scale as follows: Totally agree; Rather agree; Rather disagree; Totally disagree.

³ The individual is asked to give his or her evaluation on a Likert scale in the same way as for the Parliament, political parties and politicians of his or her country.

Table 1. Descriptive statistics.

Variable	Obs	Mean	Std. dev.	Min	Max
<i>Individual characteristics</i>					
<i>Labor market participation</i>	7,860	0.47	0.50	0	1
<i>Age</i>	7,860	21.87	4.06	15	29
<i>Location (Urban = 1; Rural = 0)</i>	7,860	0.62	0.48	0	1
<i>Female</i>	7,860	0.46	0.50	0	1
<i>Married</i>	7,858	0.17	0.38	0	1
<i>Educational level</i>					
<i>Primary</i>	7,860	0.36	0.48	0	1
<i>Secondary</i>	7,860	0.40	0.49	0	1
<i>Tertiary</i>	7,860	0.24	0.43	0	1
<i>Household structure characteristic</i>					
<i>Household size</i>	7,860	4.75	1.89	1	16
<i>Head of household</i>	7,851	0.05	0.22	0	1
<i>Number occupied in the household</i>	7,860	1.38	1.28	0	9
<i>Superior number in the household</i>	7,860	1.33	1.23	0	9
<i>Support</i>					
<i>Living with parents</i>	7,860	1.53	0.82	1	3
<i>Intention to migrate</i>	7,859	0.28	0.45	0	1
<i>Satisfaction and self-esteem</i>					
<i>On the whole, I am satisfied with myself</i>	7,852	3.27	0.71	1	4
<i>Job scarcity and gender</i>					
<i>When work is scarce, men should have more right to a job than women.</i>	7,859	1.83	0.83	1	4
<i>Membership in a youth club</i>	7,858	0.19	0.40	0	1
<i>Trust in institutions and political participation</i>					
<i>Trust in politicians</i>	7,850	1.86	2.44	0	10
<i>Voted in last election</i>	7,860	0.28	0.45	0	1

Source: Authors' calculation.

$$\begin{aligned}
& + \alpha_k * \sum_{k=8}^{11} (\text{Household structure characteristics})_{k,i} \\
& + \alpha_k * \sum_{k=12}^{13} (\text{Family Support})_{k,i} + \alpha_k * \sum_{k=14}^{14} (\text{Satisfaction and self - esteem})_{k,i} \\
& + \alpha_k * \sum_{k=15}^{16} (\text{Job scarcity and gender})_{k,i} \\
& + \alpha_k * \sum_{k=17}^{18} (\text{Trust in institutions and political participation})_{k,i} + \varepsilon_i
\end{aligned}$$

4.2. Empirical Results and Discussion

4.2.1. Examining the Impact of Novel Empowerment Pathways on Women's Labor Force Participation in North Africa: Full Sample

The estimation results indicate a positive relationship between age and labor market participation for both men and women in the entire sample (Table 2). This relationship is non-linear, as evidenced by the statistically significant association between 'age²' and the participation variable. These findings align with the research of Lassasi and Hammouda (2009), who observed a successive increase in the likelihood of women being active between the ages of '25 and 54 years,' followed by a decrease between '55 and 64 years.' Tunali et al. (2019) also highlighted notable shifts in women's labor force participation

Table 2. Determinants of Labor Market Participation: Full Sample, North Africa.

	Total	Female	Male
Individual characteristics			
Age	0.165***	0.151***	0.142***
Age ²	-0.00256***	-0.00244***	-0.00194***
Location (Urban = 1; Rural = 0)	-0.0143	-0.0229	-0.00443
Female	-0.182***	-	-
Marital status			
Married	-0.325***	-0.351***	0.0893**
Education Level			
Secondary	-0.195***	-0.121***	-0.253***
Higher	-0.329***	-0.148***	-0.488***
Household structure characteristic			
Household size	0.0026	-0.00375	0.00317
Head of household	0.261***	-0.108*	0.0719*
Number occupied in the household	0.00452	0.0116*	-0.000289
Superior number in the household	0.00714*	0.00962*	0.00263
Support			
Living with parents	-0.000772	0.00459	-0.000124
Intention to migrate	-0.0005	-0.0201	0.0199
Satisfaction and self-esteem			
Overall, I am satisfied with myself	-0.0186***	-0.0153	-0.0188**
Job scarcity and gender			
When work is scarce, men should have more right to a job than women.	0.00415	-0.0041	0.0057
Membership in a youth club	-0.012	-0.0156	-0.00287
Trust in institutions and political participation			
Trust in politicians	-0.00387**	-0.00423	-0.00283
Voted in last election	0.00187	-0.0341**	0.0202
Country			
Algeria	-0.113***	-0.188***	-0.0399**
Egypt	-0.101***	-0.184***	0.00228
Morocco	-0.219***	-0.182***	-0.184***
Tunisia	-	-	-
Observations	7,829	3,573	4,256

Source: Authors' calculations. Marginal effects without stars are statistically insignificant.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

as they age. Additionally, Lari et al. (2022) emphasized the significance of age as a key determinant of labor force participation.

Marital status has a differential impact on labor market participation by gender. For men, marital status does not significantly affect their likelihood of participating in the labor market. However, for women, being married and residing in an urban area reduces the probability of labor market participation. This finding aligns with previous studies that have consistently highlighted lower labor market participation among married women with children (Cook & Beaujot, 1996; Lee et al., 2008; Van Der Klaauw, 1996). The 'marriage penalty' hypothesis (Leuthold, 1984; Sayre & Hendy, 2016) further supports these results, suggesting that married women or those living with a partner are less likely to engage in the labor force. This can be attributed to increased domestic responsibilities associated with committed relationships (Assaad & Zouari, 2002; Özlem Taşseven et al., 2016; Syed Salleh & Mansor, 2022; Ueda, 2008).

Our findings regarding the role of education as a determinant of labor market participation reveal an unexpected trend in the North African region. This result aligns with the research conducted by Winkler (2022), highlighting the Middle East and North Africa as deviating significantly from the typical impact of educational attainment on labor force participation, commonly known as the 'MENA paradox' (Kerras et al., 2022). Despite

women's increasing educational achievements in the region, their labor force participation rates have not seen a corresponding rise. This can be attributed to restrictions on women's mobility in the Middle East and North Africa, driven by concerns over their 'safety' and 'purity,' which limit their workforce engagement despite higher education (Jayachandran, 2020). Additionally, in societies where men hold dominant positions and customary behaviors dictate norms, women face formidable obstacles in achieving gender parity and full involvement in political, financial, and social affairs, despite their higher levels of education (Alesina et al., 2012; Boserup, 1970). These behavioral standards often reinforce gender-based roles and biases, restricting women's access to job opportunities and influential decision-making positions. Consequently, women are more likely to encounter invisible barriers, commonly referred to as the 'glass ceiling' or 'sticky floor,' impeding their upward mobility and perpetuating gender inequality (Kerras et al., 2022).

Regarding the impact of education on men's labor force participation, our findings confirm that despite increasing levels of education, men exhibit lower participation rates in the labor market. These findings are consistent with existing literature on the MENA region (Ahmed et al., 2012; Dadush, 2018). Ahmed et al. (2012) emphasized that education in the MENA region does not guarantee protection against unemployment. In fact, their study reveals a positive correlation between higher education levels and unemployment rates. This can be attributed to changes in employment structure on the demand side, particularly the decline in public sector opportunities without a corresponding increase in formal private sector options, leading to higher unemployment rates among both men and women. Consequently, this situation contributes to a decline in overall labor force participation rates, despite educational advancements (Assaad et al., 2018).

Another explanation relates to the concept of the 'reservation wage' (Hofler & Murphy, 1994; Krueger & Mueller, 2016). As men attain higher education levels, their expectations and aspirations regarding job prospects and income typically rise. However, the MENA region faces challenges such as limited job opportunities, high unemployment rates, and a mismatch between the skills demanded by the labor market and those acquired through education. Furthermore, highly educated men may have a higher reservation wage, leading them to be less willing to accept lower-paying jobs that do not meet their salary expectations. This can result in a lower labor force participation rate among educated men, as they may choose to remain unemployed or withdraw from the labor market until more suitable opportunities arise (Dadush, 2018).

Our findings reveal gender-specific impacts of household structure on labor market decisions. Specifically, for women, being a married female head of household decreases the likelihood of labor market participation. In contrast, for men, being married and the head of the household increases the probability of participating in the labor market. This aligns with the results of Tienda and Glass's (1985) study, which also observed lower labor market participation among female heads of households. It is worth noting that female heads of households face additional challenges in balancing domestic and work responsibilities, including the need for adequate childcare (Naqvi et al., 2002). In the same vein, traditional gender roles can impede women's labor market participation and hinder progress towards gender equality (Gornick & Meyers, 2005; Lopez-Acevedo et al., 2021).

Moreover, gendered social norms and expectations, especially in male-dominated societies such as North Africa, can hinder women's ability to balance family responsibilities and engage in the labor market. Women in these societies experience increased pressure

to prioritize household duties over paid work, resulting in lower labor force participation rates. Conversely, men in such societies may receive greater social and familial encouragement for their participation in the labor market, leading to higher participation rates (Alesina et al., 2012; Boserup, 1970; Cislighi et al., 2022).

Our study revealed a significant finding regarding the differential impact of household structure on labor force participation based on gender. Specifically, we observed that the number of employed individuals in the household has contrasting effects on men's and women's labor force participation. Women residing in households with a higher number of employed persons are more likely to participate in the labor market, whereas men in the same household configuration are less likely to participate. This finding suggests that women in such households may have improved access to information, resources, and social networks that support labor market engagement. Conversely, men may experience reduced pressure to seek paid employment due to the perceived presence of sufficient economic support within the household. These results align with previous studies (Aguilera, 2002; James et al., 1999) that highlight the positive relationship between women's employment and diverse, high-quality social networks (Stoloff et al., 1999).

Our findings indicate gender differences in the impact of family support on labor market participation. Women living with their parents are more likely to participate in the labor market, while the opposite holds true for men. This suggests that women receive greater support from their families in entering the labor market. These results align with Sasaki's (2002) study, which highlighted the positive effect of living with parents or in-laws on women's employment rates in Japan. Living with family members allows women to share household responsibilities, leading to higher labor force engagement. Additionally, Deb-nath (2015) found that women in nuclear households had higher decision-making power compared to those in joint households, as they had greater control over resources and faced fewer mobility restrictions. In joint households, decision-making is often centralized in the hands of the patriarch, limiting women's autonomy. These findings emphasize the influential role of household structure in shaping women's decision-making abilities and labor force participation. Our own research yielded similar results, further underscoring the significance of household structure in shaping women's decision-making abilities and their participation in the labor force.

In a surprising turn, our study revealed a negative impact of satisfaction and self-esteem levels on labor force participation among North African citizens. This finding aligns with previous literature consistently linking unemployment or being out of the labor market with lower self-esteem (Álvaro et al., 2019; Winkelmann & Winkelmann, 1998). Additionally, being a member of sports and youth clubs was found to decrease the likelihood of participating in the labor force. This could be attributed to the time commitment required for these activities, which may reduce available time for paid work.

Lastly, our study revealed a gender disparity in the impact of political participation on labor force participation. For women, political participation was associated with a negative effect on labor force participation, whereas for men, it had a positive effect. This discrepancy may arise from the barriers women encounter in political participation, while men may leverage their political connections to access employment opportunities (Deininger et al., 2020; Iversen & Rosenbluth, 2008; Thomson & Eichler, 1985).

4.2.2. Analyzing Factors Affecting Labor Force Participation: A Sub-Sample Study of Single and Married Women

In this sub-section, we aim to expand our analysis by examining the factors influencing North African women's participation in the labor force based on their marital status and educational level. Our sub-sample analysis (Table 3) has pointed out intriguing results regarding the impact of education on labor force participation among married women in North Africa. Contrary to previous findings, we discovered that higher levels of education actually contribute to increased labor force participation among married women. These results align with the empirical evidence provided by Spierings and Smits (2007) and Chamlou et al. (2016), highlighting the significant effect of post-secondary or university education on women's labor force behavior. This underscores the pivotal role of education in fostering women's engagement in the workforce, making investment in education an effective strategy for enhancing women's labor force participation.

Our study has uncovered a significant association between place of residence and labor market participation, indicating that women residing in urban areas exhibit lower levels of participation. This finding is consistent with previous literature (Bicerli & Gundogan, 2009; Heather & Peters, 1996) suggesting that urbanization tends to negatively impact women's economic opportunities and employment prospects. A potential explanation for this outcome is the higher cost of living prevalent in urban areas, which can pose challenges for women in balancing work and family responsibilities. For instance, longer commute times, increased childcare expenses, and limited affordable housing options may discourage women from entering the labor market or restrict their ability to work full-time (Mitra, 2019).

Our analysis of the impact of social norms on women's labor force participation has yielded intriguing results. Particularly noteworthy is the 'married male model' (Table 3), which demonstrates a significant and positive association between the belief that '*when work is scarce, men should have more right to a job than women*' and men's labor force participation. This finding highlights the influential role of social norms in male-dominated societies, such as those prevalent in North Africa, where cultural and societal expectations can impede women's engagement in the workforce. Traditional gender roles deeply ingrained in North African society often prioritize women's family responsibilities over their professional aspirations, making it challenging for them to pursue careers and contribute to the labor force (Bansak et al., 2022; Doorne-Huiskes, 1987). Our findings emphasize the necessity of challenging and transforming these cultural norms to foster a more equitable and inclusive society.

The household structure significantly influences an individual's labor market participation, particularly for single North African citizens, where the impact varies based on the gender of the household head. Single female-headed households are linked to a decreased likelihood of participating in the labor force, while single male-headed households are associated with an increased likelihood. This finding shed light on the intricate relationship between household structure and individual decision-making. Female-headed households may face greater constraints and caregiving responsibilities that limit their labor market participation, while male-headed households may offer more opportunities for employment, supported by financial resources or cultural norms prioritizing male work

Table 3. Determinants of Labor market participation: sub-sample analysis of single and married women.

	Married			Single		
	Total	Female	Male	Total	Female	Male
Individual characteristics						
Age	0.0568	0.107	-0.000314	0.162***	0.158***	0.149***
Age ²	-0.000928	-0.00192	0.00016	-0.00240***	-0.00248***	-0.00199***
Location (Urban = 1; Rural = 0)	-0.0397**	-0.0430*	-0.0559*	-0.00354	-0.00899	-0.000445
Female	-0.563***			-0.121***		
Education Level						
Secondary	0.0389*	0.0695***	-0.0836***	-0.254***	-0.218***	-0.270***
Higher	0.194***	0.259***	-0.03	-0.429***	-0.288***	-0.522***
Household structure characteristic						
Household size	0.00128	0.000525	0.0117	-8.47E-05	-0.00228	0.00319
Head of household	-0.0185	-0.0762	0.0492	8.25E-05	-0.138*	0.0894*
Number occupied in the household	0.00171	0.014	-0.0154	0.00317	0.00713	0.00222
Superior number in the household	0.00885	0.0143	-0.00519	0.00735*	0.01	0.00334
Support						
Living with parents	0.00646	-0.0023	0.0391*	-0.000349	0.00882	-0.00233
Intention to migrate	-0.0321	-0.0478*	0.00151	0.00791	-0.00943	0.0194
Satisfaction and self-esteem						
Overall, I am satisfied with myself	-0.0398***	-0.0506***	0.00123	-0.0112	0.0061	-0.0217**
Job scarcity and gender						
When work is scarce, men should have more right to a job than women.	0.00925	0.0037	0.0444**	-0.00115	-0.00807	0.00273
Membership in a youth club	-0.00335	-0.00899	-0.0107	-0.0169	-0.0303	-0.0023
Trust in institutions and political participation						
Trust in politicians	-0.00713*	-0.00521	-0.0139**	-0.00410**	-0.00557	-0.00232
Voted in last election	-0.00623	-0.00766	-0.00897	0.00291	-0.0444**	0.0228*
Country						
Algeria	-0.130***	-0.165***		-0.106***	-0.193***	-0.0427**
Egypt	-0.128***	-0.142***	-0.0229	-0.0816***	-0.201***	0.00458
Morocco	-0.198***	-0.155***	-0.124**	-0.213***	-0.184***	-0.190***
Tunisia	-	-	-	-	-	-
Observations	1,351	1,001	307	6,478	2,572	3,906

Source: Authors' calculations. Marginal effects without stars are statistically insignificant.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

(Gornick & Meyers, 2005; Lopez-Acevedo et al., 2021; Naqvi et al., 2002; Tienda & Glass, 1985).

Finally, our analysis highlights a significant gender difference in the relationship between political participation and labor force participation among single North Africans. Specifically, single women who engage in political activities, such as voting in recent elections, are less likely to participate in the labor market, while single men who engage politically are more likely to be part of the labor force. This finding may reflect underlying gender norms⁴ and societal expectations regarding the roles of women and men, which influence their prioritization of political or economic activities. Moreover, in male-dominated societies where social norms prevail, women encounter significant challenges in achieving gender equality and full participation in political, economic, and social aspects of life (Alesina et al., 2012; Boserup, 1970). These social norms often reinforce gender roles and stereotypes, thereby limiting women's access to employment opportunities and decision-making positions (Kerras et al., 2022).

4.2.3. Factors Influencing Labor Force Participation: A Sub-Sample Study of Various Education Groups

The factors influencing labor force participation among North African women are multifaceted and contingent upon marital status and educational attainment. When examining the relationship between education levels and labor force participation, noteworthy distinctions emerged. Notably, regardless of education level, age exhibited a consistent influence, indicating that older individuals were more inclined to engage in the labor market (Table 4).

The influence of marital status on labor force participation varied based on gender and educational level. For married women with primary education, our analysis revealed a 43% decrease in the likelihood of participating in the labor market. Conversely, among men with primary education, there was a 7% increase in the probability of participation. These findings underscore the significant impact of cultural and societal norms on labor force participation for women with limited educational attainment (Clark et al., 1991; Diwan & Vartanova, 2017; Haghghat-Sordellini, 2009; Ingelhart & Norris, 2003; Lassassi & Tansel, 2020).

Additionally, our analysis revealed that household structure plays a vital role in labor force participation among individuals with primary education. Specifically, larger household sizes were positively correlated with labor market participation. Furthermore, assuming the role of household head had a significantly positive impact on labor market participation, possibly due to increased responsibilities and financial obligations faced by household heads (Baranowska-Rataj & Matysiak, 2022).

Moreover, the study uncovers an intriguing finding regarding the influence of the family environment, specifically the presence of individuals with higher education in the household, on women's economic participation. Two plausible explanations can account for this result. Firstly, these households prioritize investing in human capital, which empowers

⁴ Gender norms are 'perceived rules and collective expectations on how an individual should behave according to his or her gender, for example, in some societies women are limited to family responsibilities, which allows them less time for income generating activities. In other societies, women do not have any financial privacy from parents and husbands' (Elouaouri & Ezzahid, 2022, p. 03).

Table 4. Determinants of labor market participation: subsample analysis of different education groups, North Africa.

	Primary education level			Secondary education level			Higher education level		
	Total	Female	Male	Total	Female	Male	Total	Female	Male
Individual characteristics									
Age	0.228***	0.211***	0.187***	0.328***	0.348***	0.275***	0.352***	0.170**	0.275***
Age ²	-0.00456***	-0.00441***	-0.00357***	-0.00608***	-0.00668***	-0.00414***	-0.00575***	-0.00203	-0.00414***
Location (Urban = 1; Rural = 0)	-0.00539	-0.0173	0.00808	-0.0179	-0.0202	-0.00869	-0.0235	0.00386	-0.00869
Female	-0.258***			-0.170***			-0.0239		-0.0239
Marital status									
Married	-0.312***	-0.434***	0.0736	-0.267***	-0.282***	-0.112***	-0.174***	0.273**	-0.112***
Household structure characteristic									
Household size	0.00755*	0.00215	0.00345	0.000482	-0.00738	0.00658	-0.00201	0.00815	0.00658
Head of household	0.239***	-0.0257	0.0517	0.223***	-0.0823	0.109**	-0.149*	0.0946	0.109**
Number occupied in the household	0.00915	0.0139	0.00257	0.00398	0.0149	-0.00547	-0.0084	-0.00238	-0.00547
Superior number in the household	0.0027	-0.00076	0.00125	0.00392	0.0135*	0.0167**	0.0190*	0.0143	0.0167**
Support									
Living with parents	-0.00457	0.00156	-0.00645	-0.00637	-0.00618	0.017	0.0185	0.02	0.017
Intention to migrate	0.00542	-0.0112	0.0141	-0.0176	-0.0413*	0.0141	-0.00437	0.0473*	0.0141
Satisfaction and self-esteem									
Overall, I am satisfied with myself	-0.0122	-0.0290*	-0.00582	-0.0200**	-0.0233	-0.0156	0.00389	-0.0446***	-0.0156
Job scarcity and gender									
When work is scarce, men should have more right to a job than women.	0.00359	0.00156	-0.00521	0.00837	-0.00163	-0.00693	-0.0173	0.00222	-0.00693
Membership in a youth club	-0.0294	-0.0539*	0.00418	-0.0171	-0.0031	0.00127	-0.0152	0.023	0.00127
Trust in institutions and political participation									
Trust in politicians	-0.00121	-0.0069	0.00327	-0.00432	-0.00639	-0.00828**	-0.00167	-0.0118**	-0.00828**
Voted in last election	-0.0124	-0.0328	0.000574	0.0195	-0.0335	-0.00443	-0.00692	-0.00274	-0.00443
Country									
Algeria	-0.151***	-0.263***	-0.0378	-0.0432**	-0.100***	-0.148***	-0.130***	-0.160***	-0.148***
Egypt	-0.196***	-0.347***	-0.0299	-0.0369*	-0.0746**	-0.0307	-0.0792**	0.0216	-0.0307
Morocco	-0.190***	-0.163***	-0.185***	-0.178***	-0.126***	-0.206***	-0.245***	-0.166***	-0.206***
Tunisia	-	-	-	-	-	-	-	-	-
Observations	2,784	1,229	1,555	3,135	1,397	1,910	947	963	1,910

Source: Authors' calculations. Marginal effects without stars are statistically insignificant.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

women to make substantial contributions to economic activities. Secondly, the living standards of these households may play a role, as lower-income households often rely on the labor of all available members, including women, to improve their standard of living. This corroborates with the theory of survival strategies, which posits that ‘families maximize their well-being by determining the number of household members required to participate in economic activities during adverse economic conditions and widening social inequalities between different classes’ (Engelen et al., 2004). This finding supports the earlier research by Lassasi and Hammouda (2009), which highlighted a positive correlation between the presence of educated individuals in the household and the likelihood of economic participation.

In contrast to individuals with primary education, the impact of trust in institutions on labor market participation is comparable for men and women with secondary and tertiary education. The study reveals that as trust in politicians rises, both women and men with secondary and higher education show a decline in labor market participation. This outcome may be attributed to the prevailing negative perception of political life among North Africans, often associated with corruption and inefficiency (Sapsford et al., 2019). Consequently, individuals with higher levels of education may exhibit lower likelihood of labor market participation if they perceive the political environment as unfavorable, lacking transparency, and lacking accountability (Joffé, 2009).

4.3. Policy Implications for New Women’s Empowerment Pathways

Policymakers in the North African region must ensure that women in the region are empowered to realize their full potential and benefit fully and equally with men from the fruits of inclusive development. This requires legislative reforms to ensure gender equality and that women’s family responsibilities are not an obstacle to their participation in the labor market. Governments must work to address the complex barriers that prevent women from participating in the labor market, including traditional gender roles and norms, lack of access to education and training, and inadequate support for women in balancing domestic and work responsibilities. By creating policies that address these barriers, various stakeholders can create a more equitable and inclusive labor market that benefits everyone.

Policies that address the ‘marriage penalty’ hypothesis must be put in place to encourage married women and those living with partners to participate in the labor force. These policies should focus on providing women with support and assistance in balancing their domestic responsibilities and their work responsibilities. One such measure could be the expansion of affordable and quality childcare facilities to help women with young children to participate in the workforce. In addition, people’s time is divided between three occupations (leisure, paid work and unpaid work (within the household)). The latter takes up the largest share of women’s time. In this sense, the improvement of the time allocated to paid work for women is one of the solutions to improve their participation, for example through the introduction of new household technologies to reduce the burden of domestic work on women, which remains dependent on the development of basic infrastructure (electricity, water and gas ...).

The MENA paradox and the decline in public sector employment opportunities due to the COVID-19 health crisis are critical issues for women’s labor market participation in the

region. Policymakers should create job opportunities for women in both the public and private sectors, and should eliminate gender-specific barriers to employment such as mobility restrictions and discriminatory hiring practices. Additionally, governments should work to improve women's access to education to quality enhance their skills and prepare them for the labor market.

Moreover, it is crucial to implement policies that promote gender equality and support women's participation in the labor market. These policies could encompass affirmative action programs to enhance women's access to training, along with support for women-owned businesses, and measures such as equal pay for equal work and family-friendly workplace policies. In addition, reducing gender norms in male-dominated societies is a tangible approach to promoting women's participation in the labor market.

Furthermore, household structures and the role of family support must be addressed to support women's labor market participation. Policies should focus on creating an environment that promotes and supports women's labor force participation, such as promoting flexible work arrangements and providing access to resources that support labor force participation, including transportation, social networks, and information on job opportunities. Entrepreneurship constitutes a further solution for improving women's participation in the labor market. However, setting up independent projects for women requires financial resources, as women remain among the most excluded segments of the financial system. Reducing the barriers to accessing finance for women will enhance their participation through the entrepreneurial channel.

Improving transparency and accountability in political institutions to increase trust among the public are crucial drivers to women's labor force participation. This could be achieved through measures such as anti-corruption initiatives, promoting ethical behavior among politicians and government officials, and increasing transparency in decision-making processes. Additionally, efforts should be made to address the negative perception that North Africans have of political life. This could include initiatives aimed at increasing awareness of the benefits of political participation, promoting the positive aspects of political engagement, and encouraging individuals to participate in the political process.

Policymakers must prioritize legislative reforms to empower women in inclusive development and eliminate any barriers that impede their labor market participation due to family responsibilities. Moreover, advocating childcare and implementing modern household technologies can decrease women's domestic workload and provide them with more opportunities to engage in paid work. It is crucial to reduce gender norms that dominate male-oriented societies, boost women's education, skills, and access to finance, and encourage women's entrepreneurship. Implementing these policy recommendations can create new avenues of empowerment for women in the region, ultimately leading to more inclusive and sustainable economic development in the region.

5. Conclusion

The aim of this paper was to investigate the determinants of labor market participation in the North African region, with a focus on the impact of new empowerment pathways by gender. Using a microeconomic database of 7,860 individuals from Morocco, Egypt, Tunisia, and Algeria. Our empirical methodology is based on a binary choice model of the Probit type.

Our study revealed several key findings regarding labor market participation in North Africa. Firstly, we observed that as individuals aged, their likelihood of participating in the labor market increased, irrespective of gender. Additionally, we found that marital status had varying impacts on labor market decisions depending on gender. Being female, married, and living in an urban area reduced the probability of labor market participation, whereas this effect was not observed among men. Education also played an unexpected role in determining labor market participation in the region, consistent with previous research on the ‘MENA paradox.’

The structure of households also influenced labor market decisions differently for men and women. For women, being a married head of household reduced the likelihood of participation, while for men, being married and the head of the household increased it. Gendered social norms and expectations created barriers for women, particularly in male-dominated societies. Interestingly, the number of employed persons in the household had opposite effects on men and women, with women more likely to participate in the labor market in such households. Our study also highlighted the impact of social norms on women’s labor force participation, with beliefs favoring male job priority in periods of work scarcity being positively correlated with men’s participation. Trust in institutions, specifically trust in politicians, had a similar negative impact on labor market participation for both men and women with secondary and tertiary education. This outcome may be attributed to the negative perception of political life in North Africa.

Policymakers in the North African region should prioritize creating job opportunities for women, eliminating gender-specific barriers to employment, and improving women’s access to quality education. Measures such as affirmative action programs, support for women-owned businesses, equal pay, and family-friendly workplace policies can promote gender equality and support women’s labor force participation. Reducing gender norms in male-dominated societies and addressing household structures are crucial steps to encourage women’s participation in the labor market. Financial barriers for women entrepreneurs should be reduced to enable them to start their own projects. Enhancing transparency and accountability in political institutions through anti-corruption initiatives and promoting ethical behavior can increase trust and encourage women’s labor force participation. Awareness initiatives can address negative perceptions of political life and encourage greater political engagement. By implementing these recommendations, policymakers can create a more equitable and inclusive labor market in the region.

Disclosure statement

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