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**GENDER, ENTERPRISE OWNERSHIP,
AND LABOR ALLOCATION IN MENA: THE ROLES
OF ISLAM, OIL, AND GOVERNMENT POLICIES**

Hadi Salehi Esfahani and Roksana Bahramitash

Working Paper No. 951

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Abstract

We document a relatively low share of women among small and medium enterprise (SME) owners in the Middle East and North Africa (MENA). This phenomenon appears to be related to the low female labor force participation (LFP) rates commonly observed in the region. However, the connection is not straightforward because the rates of large firm ownership by women in MENA are comparable and sometimes higher than some other world regions. To take a step toward understanding this puzzling pattern, we start with a framework that takes account of economy-wide interactions between firm ownership, employment, and outside options. We then use a unique cross-country micro dataset and a two-level model to separate out the role of individual characteristics from the influence of country conditions. Our first-level micro analysis suggests that the young age structure of MENA population helps explain part of MENA women's low participation and low SME formation. At the second level, we find that the prevalence of conservative religious culture, particularly the cultural and legal rule that husbands are financially responsible for their families' expenses, rather than sharing responsibility jointly with their wives, may be a key factor that helps explain the pattern of labor allocation. In addition, lack of government effectiveness, the relative closed-ness of MENA economies, and the gap between educational attainments of women and men in the past have also contributed to women's low LFP and SME ownership. These are all policy areas in which governments can make a difference. We also explore the role of a number of other factors and show their roles in labor allocation, though they do not help explain the current weaknesses in patterns of participation and employment in the region. One very notable finding among these is that, in contrast to the results of many other studies, resource rents don't seem to be responsible for low LFP and small firm formation by MENA women. Quite to the contrary, they seem to have helped raise both of these outcomes in the oil-rich countries of the region. We attribute this sharp difference in findings to the closer cross-country comparability of our data and our micro-based approach.

JEL Classification: J1, J2

Keywords: Gender, Female Ownership, SMEs, MENA Region, Labor Force Participation

ملخص

نقوم بتوثيق النسبة المنخفضة نسبياً من النساء بين أصحاب المشاريع الصغيرة والمتوسطة (SME) في منطقة الشرق الأوسط وشمال أفريقيا (MENA). ويبدو أن هذه الظاهرة يجب أن تكون متصلة بانخفاض مشاركة الإناث في القوى العاملة (LFP) الملحوظة عموماً في المنطقة. ومع ذلك، فإن العلاقة ليست واضحة لأن معدلات ملكية الشركات الكبيرة للمرأة في الشرق الأوسط قابلة للمقارنة والارتفاع في بعض الأحيان من بعض مناطق العالم الأخرى. لاتخاذ خطوة نحو فهم هذا النمط المحير، نبدأ مع الإطار الذي يأخذ في الاعتبار التفاعلات على مستوى الاقتصاد بين الملكية الثابتة، والعمالة، والخيارات الخارجية. ثم نستخدم بلد عبر بيانات فريدة ونموذج مستويين لفصل دور الخصائص الفردية من تأثير ظروف البلاد. ويشير تحليلنا الجزئي على المستوى الأول أن هيكل السن المبكرة من سكان المنطقة يساعد على تفسير جزء من مشاركة المرأة المنخفضة وتشكيل المؤسسات الصغيرة والمتوسطة. في المستوى الثاني، نجد أن انتشار الثقافة الدينية المحافظة، وخاصة القاعدة الثقافية والقانونية أن الأزواج هم المسؤولون مالياً لتغطية نفقات أسرهم، بدلاً من تقاسم المسؤولية بشكل مشترك مع زوجاتهم، قد يكون العامل الرئيسي الذي يساعد على تفسير نمط توزيع العمل. وبالإضافة إلى ذلك، ساهمت قلة فعالية الحكومة، والنسبية المغلقة من اقتصادات المنطقة، والفجوة بين التحصيل التعليمي للمرأة والرجل في الماضي أيضاً إلى انخفاض LFP المرأة وملكيتها المشاريع الصغيرة والمتوسطة. وهذه كلها مجالات للسياسة العامة التي يمكن للحكومات أن تحدث فرقا من خلالها. ونقوم أيضاً باكتشاف دور عدد من العوامل الأخرى وإظهار دورهم في توزيع العمل، على الرغم من أنها لا تساعد على شرح نقاط الضعف الحالية في أنماط المشاركة والعمل في المنطقة. إحدى النتائج البارزة جداً بين هؤلاء هو أنه، على النقيض من نتائج العديد من الدراسات الأخرى، فإن ريع الموارد لا يبدو أن يكون مسؤولاً عن انخفاض LFP وتكوين شركة صغيرة لنساء الشرق الأوسط. وعلى العكس تماماً، يبدو أنها قد ساعدت في جمع كلا من هذه النتائج في البلدان الغنية بالنفط في المنطقة.

1. Introduction

Unemployment rates in the countries of Middle East and North Africa (MENA) are quite high, particularly for youth and the educated (The World Bank, 2004; World Economic Forum, 2011; O'Sullivan, Rey, and Mendez, 2011; The World Bank, 2007; Galal, 2008). This unemployment problem also has a significant gender dimension: In MENA, young women's unemployment rate tends to be much higher than men's. It is also higher than the unemployment rates of women elsewhere, despite the noticeably lower female labor force participation (LFP) rates in MENA (The World Bank, 2012a). Indeed, the highest ratios of female to male unemployment rate are observed among MENA countries (Figure 1). The idleness of such labor resources has huge economic and social costs, including the possibility of increased inequality and socio-economic polarization. High unemployment has already fueled political unrest in the region, and the continuation of this situation may lead to further political instability and economic decline. Improving the quantity and quality of employment and reducing the gender bias in the labor market are major concerns for MENA economies.

A striking problem in MENA labor markets is the disproportionate unemployment rate among educated young women, who in principle should be in good positions to find employment. However, there seems to be a significant mismatch between the qualifications and expectations of these job market participants and the characteristics of the potentially available jobs. Education is supposed to have helped develop the skills that could then be put into productive use. But, educational systems do not seem to be performing that function well. As a result, attaining higher education may not always be with the intent of increasing one's opportunities in the labor market. As Rezaei-Rashti and Moghadam (2011) and Rashad, Osman, Roudi-Fahimi (2005) argue, the causality could be reversed: Since the average age of marriage has been rising in MENA, women may be pursuing higher education because of lack of job opportunities. Indeed, these and several other studies suggest that many young women are supported by their families to continue their education, while many young men are under pressure to enter the labor force earlier because they may have more job opportunities for which education is not deemed necessary. This imbalance in educational and employment paths of men and women tends to create its own complications in the marriage market. The effects go wider and could be complex. But, this should not divert attention from the fundamental fact that women in the region face major disparities in the labor market that have major social and economic consequences.

Creating more jobs and improving the match between jobs and worker characteristics to ensure productivity requires entrepreneurship. Therefore, to understand the reasons for the present inefficient outcome and to contemplate policy changes that could address the problem, a set of key questions are:¹ What factors have constrained entrepreneurship in MENA countries and how can those obstacles be removed? What is the relationship of low entrepreneurship with low LFP among MENA women? Why do too few people choose to become entrepreneurs to create jobs for themselves and others? What roles have Islam, oil, and government policy played in the outcome? How can entrepreneurs be enabled to take advantage of the pool of unemployed to make everyone better off? Can the enhanced role of female entrepreneurs in the economy help reduce poverty and inequality, especially for women?

In this paper, we take some steps in addressing the above questions by first documenting the ownership patterns of small and medium enterprises (SMEs) and large firms by the gender of the owner in MENA and elsewhere. We show that female ownership rates are particularly low among SMEs, but not among large firms. We specify an economy-wide framework for understanding the interactions among firm ownership, employment, and outside options. To

¹ For examples of recent research and surveys of literature on female entrepreneurship in MENA see Chamlou (2008), CAWTAR and IFC(2007), The World Bank(2012a).

arrive at empirical results, we employ the Global Entrepreneurship Monitor (GEM) dataset that offers highly comparable cross-country micro data and analyze it by means of a two-level model to discern the influence of country conditions from the role of individual characteristics. The results prove to be different from those derived from aggregate indicators and yield important insights and policy implications.

Enhancing entrepreneurship among MENA women seems particularly pressing for two reasons. First, their rate of participation as business owners is low when compared to the rates for women in most other regions (GEM, 2010). This is particularly the case for ownership of small and medium enterprises (SMEs)(See OECD (2012) and Tables 1 and 2.)This deprives MENA economies from the broader variety of products and jobs that a greater diversity of entrepreneurs can bring about. Second, there is evidence that female-owned firms tend to employ more women in MENA (Chamlou, 2008; Esfahani and Bahramitash, 2015). In fact, in some cases women are not allowed by law or by social norms to be in work spaces where men are present and female-owned firms end up hiring women only.² As a result, the expansion of women's role as business owners may particularly help address the serious shortage of them as well.

It is worth noting that there may be a gender bias in the documentation of female employment and entrepreneurship. There is vast literature on this topic in rural areas. However, this is true of urban areas as well (Waring, 1988; Benería, 2003; Elson, Grown, and Çagatay, 2007; Bahramitash 2005). The problem may be more severe in the case of Muslim-majority countries. For example, Minkus-McKenna (2009) argues that in Saudi Arabia, numbers of women are being employed increasingly, but the statistics remain in the 5.5% to 15% range (Parker, 2007). Bahramitash (2013a) points out that due to gender segregation, female micro entrepreneurs tend to remain invisible. According to Ozar (2007), this is partly because women in MENA venture into the type of businesses that are extensions of their domestic work or social roles, such as firms in the hospitality sector. These effects, of course, may not apply to SMEs and larger enterprises. In fact, there is a counter claim that women's ownership of firms may be exaggerated in some situations because men register their firms in the names of their wives and daughters to reduce the risks of government intervention and public scrutiny. The reverse could, of course, be true: women entrepreneurs leaving the ownership of their firms in the names of their husbands or sons to avoid discriminatory treatment by government officials or others with whom they need to deal. In Saudi Arabia, where women are not allowed to drive, Minkus-McKenna (2009) notes that some women entrepreneurs front their business by a male kin for practical reasons. Such practices have indeed been documented in some MENA countries.³ Despite these caveats, we believe that there is still a significant under-representation of women in MENA SMEs. This is confirmed by the results reported here based on the GEM dataset, which is likely to have produced representative samples because of its focus on individuals, rather than on businesses, as units of observation.

In the section 2 below, we provide an overview of the puzzles and questions that this paper intends to address. Section 3 offers a review of the literature. Section 4 describes the data. Section 5 presents the conceptual framework of the project, and section 6 explains the methodology to be employed. Section 7 presents the results and section 8 concludes.

² See Minkus-McKenna (2009) for a case study of Saudi Arabia.

³ See Bahramitash et al. (2014) for the case of Iran. Parker (2007) argues that Saudi women participate in entrepreneurial efforts through their families. He estimates that women own some 40% of family run business, though they may often be a silent partner. Minkus-McKenna (2009) points out that some men favor women's entrepreneurial activities and support them in various forms, financially and socially.

2. Overview of Firm Ownership Patterns across Regions

MENA women's low shares as principal owners of firms seems to be related to their low LFP rate. However, the connection is not straightforward and needs to be examined carefully. In particular, the pattern of female ownership of enterprises displays a puzzling pattern in MENA: In the absolute majority of countries, share of firms owned by women declines as firm size rises. But, this is not the case in MENA, where in 8 out of 10 countries this share has a U-shaped relationship with firm size. Tables 1 and 2 highlight this pattern and contrast it with the other regions of the world, using two very different sources of data (World Bank Enterprise Surveys (WBES) and Global Enterprise Monitor (GEM)). Indeed, according to WBES that focuses on enterprise data and covers formal enterprises with more than five employees, the average female ownership rate among firms with 50 or more employees in MENA is higher than in all other regions except Latin America (Table 1). This pattern suggests that understanding female entrepreneurship in MENA requires digging deeper than the view that women in the region lack incentives to participate in the labor market. Finding the reasons behind the pattern may also help shed light on possible remedies for the observed lack of female SME entrepreneurship in the region.

One possible explanation for the low LFP and entrepreneurship rates of MENA women may be cultural and religious norms concerning women's work. An alternative hypothesis is that large oil rents enable MENA families to rely solely on their male breadwinners (Ross, 2008). A third factor may be the role of government policies toward the labor market, especially in the form of public sector employment, which motivate women to seek government jobs rather than engaging in entrepreneurial activity (Galal, 2008; Assaad, 2013). Yet another factor may be the role of social policies, safety nets, and welfare programs that affect men and women differently. For example, policies that improve the provision of childcare often support women's LFP a lot more than they do for men.⁴ Furthermore, the application and impact of government regulations, access to finance and infrastructure, and the legal system may have different effects on female- and male-owned firms. The reasons for such a differential impact may be active discrimination or due to lack of responsiveness by policymakers and bureaucrats to differential conditions faced by men and women. A final factor may be differences in the industrial structure of the economy. For example, economies based on export-oriented, labor-intensive industries seem to be more effective in facilitating women's participation as workers or entrepreneurs (Bahramitash, 2004).

3. The Literature

Historically, MENA women have always been active in agriculture and handicraft production. There are also records of a significant economic role for women in other economic activities in the urban areas of Egypt, Anatolia, and Syria. Judith Tucker shows that women were engaged in a range of urban occupations, including entrepreneurship at the time when, ironically, the British Empire would not allow women to own property. Well before 20th century, women in the Anatolia and Egypt were in charge of religious endowments or *waqf* (Tucker 1976; Cuno 1999). In Syria, women played an important role in the textile industry as entrepreneurs as well as employees (Nashat and Tucker 1998; UN-HABITAT 2005; Tucker 1993; Peterson and Lewis 1999; Cuno 1999).

Despite indications of their historical presence in economic activities, the labor market statistics in recent decades indicate very low LFP rates among women in MENA (Cinar, 2001; Karshenas, and Moghadam, 2001; UNDP, 2006; The World Bank, 2012a). Indeed, the general under-representation of women in the labor force in MENA has been a major issue of concern

⁴ It may be argued that this may not matter in the context of many MENA countries because the extended family network can be active in providing care for working mothers. However, this factor is complex because that same network may also oblige some women to stay home.

for many scholars and international organizations. Some observers have attributed this outcome, at least in part, to cultural attitudes towards women's work and the fact that according to some interpretations of Islamic jurisprudence women need permission to leave the house.⁵ However, this view has been challenged by scholars who focus on socio-economic and historical (colonial and post-colonial) factors or on the development strategies adopted by MENA countries (Assaad, 2003; Bahramitash, 2004; Kabeer, 2005, 2013; Ozar 2007). These scholars tend to emphasize issues related to political economy rather than culture in explaining women's economic status. In particular, a number of researchers have highlighted the role of oil rents and the forms in which those rents are distributed to the population as explanations for low female LFP in MENA countries (Ross, 2008). This is also related to the industrial strategies of MENA countries, which could be part of the explanation. For example, Cagatay and Ozler (1995), Standing (1999), and Bahramitash (2005) point out that most MENA countries have not followed labor-intensive manufacturing, which tends to rely on female workers as flexible cheap labor and increases female employment. Furthermore, other government policies, especially education and public sector employment, have shaped worker characteristics and expectations in ways that have led to high unemployment, especially among women (Galal, 2008).

The International Development Research Council (IDRC), OECD, the World Bank, and the ERF have prepared numerous reports and organized conferences to explore the ways in which women's role in economic activity in MENA could be improved (MENA-OECD Investment Programme, 2012; Ozar, 2007; El-Hamidi, 2011; World Bank 2013). There has been a growing concern over the issue of female economic empowerment throughout the world, especially in the context of the developing countries (Kabbeer, 2001 and 2012; The World Bank, 2012b; Kabbeer, 2013). The view is that increasing women's economic empowerment not only addresses the female unemployment problem, but can in fact lead to economic redistribution, which in turn can translate into more economic growth (Kabbeer, 2012). It could also help mitigate the factors that contribute to political unrest, such as those that have fueled uprisings in MENA in recent years.

In the case of MENA, there has been an increasing interest in female entrepreneurship, in part because of the recent evidence that women entrepreneurs have a higher tendency to hire women and at higher ranks (Chamlou, 2008; Esfahani and Bahramitash, 2015). Furthermore, gender segregation gives rise to hiring women in all female clientele businesses that are typically female owned (Bahramitash, 2013b). Of course, the increased attention to female entrepreneurship has been worldwide over the past dozen years, but the combination of low female LFP and high unemployment rates in MENA have attracted particular interest, especially in the context of SMEs. Countries such as Turkey (Karatos-Ozkan, Inal, and Ozbilgin, 2010; Yilmaz, Ozdemir, and Oraman, 2012) and Egypt (El-Hamidi, 2011; El-Hamidi and Baslevent, 2010; El-Mahdi and Rashed, 2007) have been studied in some detail regarding how women have been engaged in the economy as entrepreneurs, forming both large firms as well as SMEs. The topic of micro-enterprises and SMEs has especially been researched in the cases of Egypt, Lebanon, Morocco, and Turkey during 2001-2005.

The extent of MENA women's success as entrepreneurs is currently a subject of debate. Some scholars argue that women are achieving high goals in MENA. This is, for example, Weeks' (2009) conclusion based on her case studies of Bahrain, Jordan, Lebanon, Tunisia and the United Arab Emirates. Bahramitash, Esfahani, and Olmsted (2014) make a similar, though more limited, claim in the case of Iran. Chamlou (2008) also presents evidence to that effect

⁵ It is worth noting that in MENA, women have traditionally emphasized family and family values, a characteristic that continues to prevail in the region. Bahramitash and Olmsted (2013) explore whether employment is the answer for women. When decent jobs are limited, many women may prefer to stay with their families rather than engaging in low-return activities that could be more of a burden.

for several Arab countries and Turkey. This set of studies argues that women are operating across a range of business sectors and at all ranks, sometimes exceeding the relative positions of most women-owned firms in Western Europe and North America (Weeks, 2009). Others like Roudi-Fahimi and Moghadam (2003) further argue that because of high education, MENA women are becoming empowered and one could perhaps conclude that women's role as entrepreneurs has been enhanced. Esfahani and Shajari (2012) show that education plays a major role in increasing the likelihood that Iranian women end up being employers. Yet, there is some degree of skepticism by other scholars. For example, Hattab (2012) and Minniti and Arenius (2003) argue that although women entrepreneurs are rapidly growing, overall their share remains low.

As the literature on SMEs in the region indicates, women entrepreneurs in MENA face major challenges such as lack of access to credit (Ozar 2007). Generally, lack of access to credit is a major problem for the formation of SMEs for both men and women entrepreneurs globally (IFC, 2011). But, the problem is particularly severe for women who are often shunned by formal sources of credit. MENA is not an exception. However, the extent of the problem compared to other regions of the developing world remains unclear, and needs to be studied. Similar questions have been raised concerning the role of access to impartial courts. Preliminary evidence compiled by Chamlou et al. (2013) suggests that women do not face many disadvantages when they go to courts, though they do seem less likely to file claims.

Another line of research on entrepreneurship draws attention to the role of social networks and their interactions with individual and country characteristics (Klyver and Schott, 2011; Schott and Ashourizadeh, 2012; Schott and Cheraghi, 2012; Schott and Sedaghat, 2012). Using some exclusive segments of the GEM dataset, they show that the density and quality of networks can provide information and resources that help individuals better recognize and find opportunities. Schott (2013) shows that men and women tend to join networks with different characteristics. Whereas women tend to rely more on "private networks" (family and friends), men more often seek advice from "public networks" (professionals, work-place, markets, etc.), which are more conducive to productive entrepreneurship. Ashourizadeh and Schott (2013) further argue that networking and culture are major determinants of female entrepreneurs' growth expectations.

Generally, the literature celebrates social networks as a way of facilitating entrepreneurship and rightly so. But, as argued by French sociologist Pierre Bourdieu (1986), there could be some downside as well. Social networks typically bring together those with similar socioeconomic backgrounds and may, thus, reinforce social inequalities rather than diminishing them (Portes, 2000). This may even reinforce gender roles and, in some cases, hinder women who strive to develop large enterprises (Bahramitash, 2013a). In other words, while social networks can facilitate entrepreneurship and productivity, they could also cause differential access, restricting opportunities for some individuals and groups and, thus, hindering productivity and reinforcing social inequalities. These are interesting lines of research and exploring them further in the case of MENA would be very worthwhile.

4. The Conceptual Framework

Our conceptual framework follows the literature on occupational choice and firm size, starting with the seminal works of Lucas (1978), Calvo and Wellisz (1980), and Evans and Jovanovic (1989). More recent contributions to this literature include Gollin (2007), Cagetti and DeNardi (2006), Buera, Kaboski and Shin (2011), and Poschke (2013a, 2013b, 2013c). For our purpose, we extend Poschke's simple models to take account of some key socio-economic sources of variation in entrepreneurship patterns.

Consider an economy with a continuum of L individuals, each of which possesses a random ability, $a \in [0, \bar{a}]$, distributed as $F(a)$. Each individual has two labor market alternatives and one outside option. The outside option (e.g., homemaking or retirement) has a payoff $k + ha$,

where $k > 0$ is the benefit that everyone can receive from staying out of labor force and $h > 0$ is the additional payoff that an individual receives per unit of his/her ability. The assumption that the outside option rises with ability is reasonable because more able individuals are likely to engage in more rewarding activities for themselves. For example, they may be able to improve the education, health, or enjoyment of themselves or their children more effectively.

In the labor market, one alternative is to serve as an employee. In this case, the worker provides a units of effective labor to a firm and earns wa , where w is the wage rate per effective unit of labor. The second alternative is to become an entrepreneur. Let the entrepreneurial capability of an individual be positively related to his/her ability in a probabilistic sense. In particular, assume that this capability can be written as $be(a) > 0$, where $e'(a) > 0$, $e''(a) \geq 0$, and $b \in (0, \bar{b}]$ is a random entrepreneurial factor distributed as $G(b)$ with mean $E(b) = 1$. Under this option, if an individual with characteristics (a, b) establishes a firm, he/she employs $n(a, b)$ effective units of labor, and produces an output, $y(a, b) = zbe(a)[n(a, b)]^\gamma$, where $z > 0$ is a productivity factor driven by economy-wide factors and $0 < \gamma < 1$ is the elasticity of output with respect to labor. If the output price is the numeraire, the firm's profits will be:

$$\pi(a, b) = \max_{n(a, b)} \{zbe(a)[n(a, b)]^\gamma - wn(a, b)\} = (1 - \gamma)zbe(a)[\gamma zbe(a)/w]^{\gamma/(1-\gamma)}. \quad (1)$$

If the number of employees, $N(a, b)$, is assumed to be proportional to the units of effective labor employed, we have $N(a, b) = \sigma n(a, b) = \sigma[\gamma zbe(a)/w]^{1/(1-\gamma)}$.

The optimal level of output of the firm is $y(a, b) = zbe(a)[\gamma zbe(a)/w]^{\gamma/(1-\gamma)}$. The output rises exponentially with $be(a)$ because more capable entrepreneurs not only make their firms more productive, it is also optimal for them to expand the amount of inputs that they employ. Since $\pi(a, b)$ is a share, $1 - \gamma$, of output, the payoff from entrepreneurship is also an exponential function of entrepreneurial capability. Note that the assumption $e(a) > 0$ ensures that the expected profit of entrepreneurship for individuals with lowest ability, $a = 0$, is positive. This assumption is based on the idea that the individuals have always the option to seek self-employment and produce some non-negative amount of output.

Occupational choice of an individual with characteristics (a, b) is based on a comparison of the returns from entrepreneurship, $\pi(a, b)$, with the payoff from being an employee, wa , and the outside option, $k + ha$. In the graph of payoffs vs. ability, as in Figure 2, the outside option is a straight line with intercept k and slope h . The employment payoff, wa , is also a straight line that goes through the origin and has slope w . This line must cross the outside option line at some point, otherwise $wa < k + ha$ for all a and no one would want to be an employee, in which case the wage rate must rise until the employment payoff line becomes sufficiently steep and $wa > k + ha$ for a sufficiently large share of the population. Let the crossing point of the two lines be point L, which corresponds to the ability level a_L .

The profit from entrepreneurship given b , $\pi(a, b)$, rises exponentially with a (see Figure 2). The difference between this payoff and the maximum returns to being an employee or outside the labor market, $\pi(a, b) - \max[wa, k - ha]$, determines the probability that the individual chooses to be an entrepreneur. If the wage rate is very low, $E[\pi(a, b)|a]$ will be above wa for most individuals and there will be many entrepreneurs with few potential employees. As a result, w will rise until a sufficient number of individuals opt for the employment alternative and the number of individuals seeking employment becomes equal to the number of workers that the remaining entrepreneurs would like to hire. In this situation, the employment payoff line, wa , crosses the entrepreneurship payoff curve, $E[\pi(a, b)|a]$, at two points, T and H, corresponding to ability levels a_T and a_H , respectively. The outside option line may also cross $E[\pi(a, b)|a]$ twice if it is high enough. Let a_S be the lower crossing point of these two. [The upper crossing point is not relevant because under very reasonable assumptions, the outside

option at that point is always dominated by employment alternative.] The individuals in the upper ability ranges, especially $[a_H, \bar{a}]$, have high chance of becoming entrepreneurs and establishing larger and more productive firms. If $a_L > a_T$, as in Figure 2, those with ability in the range (a_L, a_H) are likely to opt for employee positions, while those in the (a_S, a_L) range mostly choose their outside option and those with ability below a_S tend to become small entrepreneurs (essentially self-employed). If, on the other hand, outside options have relatively low payoffs and $a_L < a_T$, as in Figure 3, those with ability in the range (a_T, a_H) are likely to become employees and those with ability below a_T tend to end up as self-employed. This situation typically applies more to men.

Since in most societies women are conditioned and expected to engage in homemaking, their outside options line tends to have a higher intercept. At the same time, they may face disadvantages in the employment and entrepreneurship markets due to social norms, government policies, or other factors, which lower the returns to entrepreneurship and employment for them. As a result, the outside option may dominate the two other options for all abilities below a_L , as depicted in Figure 4. In this situation, those with very high ability are likely to become entrepreneurs and those in the upper middle range are likely to become employees, while most of the rest end up with homemaking. The presence of children or other obligations that raise the value of time outside the labor force expand the non-participation range. This is often the case for middle-aged women. But, as those obligations diminish, women are more likely to return to the labor market, as often observed in the case of women in their 50s. Of course, some of the women even in the lower range may have high entrepreneurial talent and end up becoming self-employed or SME owners from earlier years.

The above analysis focuses on the labor market outcome for an individual, given the market conditions. When there are changes at the level of the economy, their interactions with the three curves and the implication for individual choice must be assessed in order to determine the equilibrium outcome. For example, when educational attainment rises generally, the distribution of the population on the ability axis shifts to the right. If the returns to entrepreneurship for each ability level does not change (i.e., the $E[\pi(a, b)|a]$ curve does not shift), more individuals would find entrepreneurship attractive as long as the wage rate and outside options remain the same. However, the increased size and number of firms generates demand for labor and raises the wage rate per unit of effective labor. When that happens, the wage curve rotates upward and encourages the population to switch out of homemaking and self-employment at the lower segments of the ability range. Interestingly, the range of abilities of the individuals who become SME owners may also shrink as more large firms get formed by the top ability groups, making the employment option attractive for those in the lower ability range of potential entrepreneurs. Of course, if the educational attainment shifts the outside option curve or affects the shape of the payoff curves, the outcome might be different.

As the above example shows, the model can be used for assessing the theoretical effects of a variety of factors on occupational choice and firm size distribution. For example, if the government decides to create jobs in its bureaucracy, it raises the expected returns of employee positions, rotating the wa line upward and driving down the entrepreneurship rates. This scenario may be particularly relevant to the female labor market in MENA (Assaad, 2013). Another example is the situation where higher taxes or stricter regulations are imposed on larger firms, in which case the expected returns to entrepreneurship for higher ability individuals decline, increasing the supply of employees while reducing the demand for labor by larger firms. This reduces the wage rate and leads to the formation more small and micro enterprises.

An important factor of interest in shaping women's economic activity is the extent to which they face hurdles in their pursuit of entrepreneurship. The more restricted the entrepreneurial

options are for women, the fewer jobs may be created for them and the payoff from employment may also be lower, hence staying out of the labor force may become more attractive for a wider range of women. Note that the hurdles facing women may not be the same across ability ranges. In particular, those coming from higher socio-economic backgrounds may have higher abilities and at the same time encounter less barriers to entrepreneurship and employment. In that situation, that group may be adequately represented among the owners. This could increase the demand for female labor and raise women's participation and employment rates if large female-owned firms employ women at higher rates than the male-owned firms do. However, the difference in the gender composition of female- and male-owned large firms is relatively small and the effect could be small, especially in the MENA region where the difference tends to be negligible (Esfahani and Bahramitash, 2015).

There is another factor that may also intervene in the outcome of female labor allocation: Many women tend to prefer to be close to their families due to their role as caregivers to children, elderly, sick, or disabled members of the family. As a result, micro enterprises in their neighborhood may provide better opportunities for combining care and productive economies. This factor may reduce the formation of medium and large firms by women entrepreneurs and, to the extent that female-led firms tend to create more jobs for women than male-led firms do, the demand for female labor may get depressed, inducing more women to opt for homemaking.

Another consideration is the role of inequality and polarization in the distribution of access to finance and other economic resources. These factors can be modeled as an increase in the curvature of entrepreneurial capability curve, $e(a)$: individuals growing up in upper class families tend to develop better skills and entrepreneurial abilities. In this situation, they are in more advantageous positions to form enterprises, especially larger ones. Moreover, the increased demand of their firms for labor makes it harder for the potential entrepreneurs from the middle range abilities to compete. As a result, fewer SMEs are formed and the distribution of firm sizes becomes more polarized. In social settings where women from middle and lower income families face greater obstacles in doing business (e.g., due to differences in assets, access to credit, or norms of different social classes), such effects are likely to have stronger consequences for them, thus rendering the scarcity of SMEs more pronounced among female-owned firms than male-owned ones. This is often exacerbated by the role of social networks because, as often argued in feminist literature, the boys club is not easy to get into.⁶

The above model can also be extended to include unemployment by introducing contracting problems such as adverse selection and moral hazard into the employment process. But, that would not change the effects discussed above.

5. The Data

Our main data source is the public GEM dataset, which currently offers the results of random sample surveys of individuals in 87 countries during 2001-2010. The surveys provide detailed information about individuals' characteristics, entrepreneurial activity, and firm ownership. However, the question about labor market status has been included only in the surveys conducted in 2009 and 2010, on which we focus. The surveys in these two years cover 74 countries with 321,988 observations, including 13 countries in MENA with 34,559 observations (The MENA countries included in this set are: Algeria, Iran, Jordan, Lebanon, Morocco, Saudi Arabia, Syria, Tunisia, UAE, West Bank and Gaza, Yemen). The average sample size for 2009-2010 is about 2,800 per country-year, but the range is quite wide, from about 730 to 28,000. The median sample size is about 2,000. This means that in statistical analysis, it is important to apply weights based on the sizes of country-year samples.

⁶As Sandberg (2013) argues in the case of the US, women continue to face major impediments in playing leading roles in firms as owners or top management.

We combine the information about the individuals' labor allocation and their firm size, when they are firm owners, to form an indicator with nine possible values representing different outcomes: (1) Homemaker, (2) Retired/Disabled, (3) Student, (4) Unemployed (or not in any other category), (5) Part-Time Employee, (6) Full-Time Employee, (7) Self-Employed, (8) Small Owner/Employer (firms with 1-9 workers), and (9) Medium/Large Owner/Employer (firm with 10 or more workers). We use only two categories of firm ownership to keep the number of observations in each category and in each country reasonably large.

Table 3 presents the summary of country-level shares of the nine labor allocation alternatives by gender in our dataset, comparing MENA region with the averages of all other countries included in the dataset. It shows that while for men the MENA averages for all alternatives except unemployment are roughly similar to the world averages, for women homemaking is more than 2.5 times as common in MENA as in the rest of the world (55 percent vs. 21 percent). MENA women are also on average more likely to be students than those elsewhere, by about 1.8 times. For all other labor allocation alternatives, the likelihoods in MENA are significantly lower than those in other regions. These averages, of course, reflect a variety of factors that need to be taken into account before one can develop an opinion about the reasons for these patterns.

For the determinants of labor allocation outcomes, we consider two sets of variables: individual characteristics and country conditions. Individual characteristics include gender, age, and education. Since the effects of many variables are likely to vary significantly between men and women, we estimate our model separately for each gender. For age, we specify dummies that indicate whether the individuals are in their 20s, 30s, ..., or 60's. The group in their 20s is selected as the base and all other groups are compared with it.⁷

The education indicator in the dataset gives information on whether the individual has "No Education," "Some Secondary Education," "Secondary Education," "Post-Secondary Education," "Graduate Education," or "Other." We use No Education as the base case and compare all others with that category. We should note that educational attainment might be endogenous. We could not find an instrumental variable in our dataset that could help address this potential endogeneity problem. However, as studies that manage to address the endogeneity problem show, the extent of the bias is likely to be quite small (see Esfahani and Shajari, 2012).

Table 4 summarizes the age and educational structures of the countries in the sample, separating MENA and non-MENA countries. This table accurately reflects the younger structure of MENA's population and confirms the sample's representativeness in that respect. It also shows that despite recent accomplishments in education among MENA countries, they still lag behind the typical countries included in the GEM sample and the gap is larger for women. For example, while in other regions about 69 percent of men and 66 percent of women have secondary or higher education, these shares are 62 percent and 56 percent in MENA.

We use a number of country-level economic, political, and institutional variables from various data sources. In particular, we employ: PPP GDP per capita, Gini coefficient, shares of agriculture and natural resource rents in GDP, and average years of schooling by gender from the World Development Indicators; the government effectiveness index from World Governance Indicators (WGI); economic freedom indices of the Heritage Foundation; religious adherence data from Robert Barro's datasets, and the subcomponents of World Bank's datasets on Doing Business (DB) and Women, Business and the Law (WBL). Table 8 offers the list and summary statistics of the variables that we use in our regression analysis. We discuss these

⁷ This method introduces multiple explanatory variables that increase the number of parameters to be estimated. Alternatively, we could have introduced age as a quadratic or higher-order multinomial function. However, that requires some prior knowledge of how labor allocation changes with age. Our method bypasses this requirement and provides more flexibility.

variables as we present the estimation results. As much as possible, the values of these indicators are averaged over 2000-2008 to ensure that they are formed before 2009-2010 when the GEM data is collected. This reduces the chances of a simultaneity problem, though it does not fully remove that possibility. In case of the WBL variables, data is available only for later years. But, the variables used are the kind that are very unlikely to have changed within the past decade.

In addition to the variables shown in the tables, there are many other ones that may be relevant to labor allocation. Since our cross-country number of observations are limited, in this paper we focus on 13 variables that represent broad aspects of socio-economic conditions. In our related work (Bahramitash, Esfahani, and Lin, 2015), we examine the role of more detailed aspects of the environment, particularly labor market regulations and institutions. There are also important factors, such as the size of public sector employment, for which we could not find adequate data. We may attempt to infer the effects of such variables indirectly based on the available data.

6. The Methodology

We use a two-level regression procedure to analyze the labor allocation of each gender among the nine alternatives. At the first level, we focus on individuals and use a multinomial probit model for each gender to relate the labor outcome to age, education, and country of residence. We then extract the marginal country effects on the labor allocation probabilities for each gender and try to explain their variations by the socio-economic and institutional characteristics of countries. This two-step process is somewhat less efficient than alternate approaches to multilevel model estimation, but it is computationally simpler and more flexible (Leoni, 2009). Some researchers have applied weights in the second stage based on the samples in first stage. But, Lewis and Linzer (2005) argue that the OLS method with White's heteroscedastic consistent standard errors yields better results. In our model, however, the nine marginal probability effects are cross correlated and add up to one. This further means that the effects of any factor that shifts those probabilities must add up to one across equations. To deal with these constraints and obtain robust standard errors, we employ Stata's Structural Equation Modeling (SEM) procedure.

In assessing the role of institutions on the economy, it is common practice to develop indices that aggregate various aspects of the relevant institutions and then use such summary indices in regressions as explanatory variables. Formation of such indices is often based on ad hoc rules (such as simple summation of the indicators for all subcomponents without knowing whether the assumption of equal weights has any empirical validity). We follow a different procedure when possible and rely on individual subcomponents that prove more significant in the statistical analysis.

The multinomial probit method employed in our analysis is more time-consuming than the commonly used logit method, but it has the advantage that it does not suffer from the assumption that odds ratios between each two alternatives are independent of all other ones. We also contemplated the possibility that decision making by individuals is a nested process in which some factors play a role within or between some groups of alternatives, but not among all alternatives. For example, an individual may first decide to participate in the labor market or not and, once that decision is made, they get to choose among alternatives under each branch. This could be important if there are variables that affect the first decision, but plays no role at the second level. For example, some cultural factors may determine whether women become homemakers or participate in the labor market. However, once they participate, those cultural factors do not play much of a role in the way they engage with the labor market (as employees, self-employed, or employers). If decisions are indeed nested in such ways, then the random factors that influence decisions may be correlated across some alternatives and a nested model

may be more appropriate. We searched for factors that could possibly help identify such a nested model. However, we could not find any among the variables at our disposal. Therefore, we settled with the multinomial probit model.

7. Estimation Results

7.1 Multinomial probit regression

Tables 5 and 6 show the results of our multinomial regressions for females and males, with age and education categories as explanatory variables. The base case for each gender is the group in their 20s with primary education or less. The first four rows of Table 5 show that compared to women in their 20s, the probability of homemaking is higher by about 5-6 percent for women in their 30s-50s and by about 10 percent for women in their 60s. The probability of being retired/disabled, on the other hand, declines somewhat for women in their 30's, but then starts to quickly rise after age 50 and reaches about 20 percent for those in their 60s. The probability of being a student after age 30 is lower by around 10-12 percent. The unemployment outcome also declines after age 30, but progressively declines from 4 to 6 percent between age ranges 30s and 60s. The probability of ending up with a part-time job is not very different between women in their 20s, 30s and 40s, but then the likelihood declines somewhat after age 50. Holding a full-time job is 3-4 percent more likely for women in ages of 30s and 40s compared to those in their 20s. This likelihood drops sharply for those in their 60s, as one expects. Being self-employed is about 1 percent more probable for women who pass age 30 and does not decline in any tangible way with age. Becoming a small firm owner is 4-6 percent more likely for all women above 30 compared to those in their 20s. The likelihood of owning a large firm also rises with age. Though the magnitude is small, it is statistically significant. It is also economically significant because this alternative applies to a very small share of women and the marginal probability effect imply major shifts with large employment consequences for the labor force as a whole.

For men, as shown in the upper panel of Table 6, the age profiles of most labor allocation alternatives are very similar to those of women (that is, the changes in marginal probabilities of these alternatives for individuals in their 30s, 40s, etc., compared to the corresponding group in their 20s follow similar paths for men and women). However, the marginal effects are larger and the patterns are more pronounced. The only major difference for the two genders is in the case of homemaking, which rises with age for women and declines for men until their 60s.

Given that MENA has a younger population, part of its high unemployment and low SME formation could be explained by the age structure. However, the estimated country marginal probability effects suggest that this factor can only be a small part of the explanation for the relatively low presence of female-owned SMEs.

The lower panel of Table 5 shows that increased educational attainment is associated with increased probability of part- or full-time employment among women in a significant way. Interestingly, it mirrors reduced homemaking rather closely. The probability of being a student is also higher for those who have reached beyond secondary degree, while the probability of being unemployed declines with education. Schooling has little net impact on retirement/disability probability, possibly because the increase in the number of full-time employees is balanced against longer work life. Self-employment and small firm ownership outcomes tend to be somewhat less likely for women with secondary education, but medium and large firm ownership rises with education beyond the secondary level. Given that the educational attainment of most MENA women is on the low side of the middle range (on average about 7 years of schooling), education is likely to have helped their labor force participation, but has not reached a level to raise female entrepreneurship more broadly.

A comparison of the lower panels of Tables 5 and 6 shows that like age, increased education has similar effects on female and male labor allocation in many cases. However, unlike the case of age, the effects are generally smaller for men. Also, educational attainment, which tends to increase the part-time employment probability for women up to the graduate level, tends to reduce it for men.

7.2 Country conditions and labor allocation

Table 7 provides the summary statistics for the nine country-effect marginal probabilities derived from our multinomial probit regressions. In our second step of analysis, we use a system of related equations to simultaneously explain the variations of these marginal probabilities based on country characteristics. The summary statistics of country-level variables used in the analysis are given in Table 8.

Tables 9 and 10 present our main results for the marginal probability effects of country conditions on labor allocations of women and men. The first two explanatory variables are the log of real PPP GDP per capita and its square. These two variables control for the role of overall development of the economy and potentially account for the U-shaped trend in female LFP (Mammen and Paxson, 2000; Goldin, 2006; Gaddis and Klasen, 2014). The idea is that women have high rates of participation in very poor countries, but their participation rate goes down as the economy develops and men earn sufficient income to allow women to focus on home activities. However, further development raises the educational and market opportunities for women and raises their LFP rates. Some of these effects are captured by the other variables included in our analysis. However, we include the quadratic expression of GDP per capita to account for any other driver of the U-trend that may be left out. The estimation results show that among the non-market participation alternatives (homemaking, retirement/disability, and studying) only retirement/disability has a U-shaped effect. However, the estimates for the effects of development on the participation options are novel and interesting. They show that, controlling for other factors considered in the model, rising income initially tends to raise both full-time employment as well unemployment probabilities for women and lowers the likelihood of their entrepreneurship, but this trend reverses at higher income levels. For entrepreneurship options, the thresholds of reversal are well-above income levels of non-oil MENA countries, particularly in the case of small firm formation. This may explain part of the low SME ownership rates among women in those countries. For men, the pattern is similar, except in the case of full-employment where no trend can be detected.

The third rows of Tables 9 and 10 show the effects of the relative education of women vs. men in the country. We first included both these educational attainment indicators in the regressions and noticed that their coefficients were of almost equal magnitudes with opposite signs. We interpreted this result as evidence that the relative educational attainments of men and women matter in labor allocation. The estimated coefficients of log of average years of education of women relative to men show that women reduce their probability of remaining students and tend to form more small enterprises as their education rises relative to that of men. For MENA countries, where the educational gap is still larger than in most of the world, this seems to explain part of the missing female-owned SMEs puzzle. The result also shows that the continued educational achievements of MENA women could lead to the formation of substantially more women-led SMEs. For men also, the improved relative position of women is associated with small firm formation. But, it also raises the probability of retirement and comes at the cost of reduced part-time, full-time, and student alternatives.

In the fourth rows of Tables 9 and 10, we present the estimated effects of agricultural value added on GDP. For both women and men, more agricultural societies seem to provide greater chances of SME and large firm ownership, mostly at the cost of reduced studying options. This

seems natural given that firms in agricultural societies are mostly based on parcels of land. Interestingly, in such situations men are also slightly more likely to be homemakers.

Rows 5-7 in the estimation results tables are dedicated to an important controversy regarding female LFP rates in MENA: The role of natural resource rents vs. the shadow of Islam. Row 5 in Table 9 shows that contrary to Ross's (2008) observation, natural resource rents may be positively related to female LFP rate. This result can be seen more directly in the case of MENA countries in graphed Figure 5. The result makes sense since oil-rich countries have had the financial resources to provide better opportunities for women to engage in the economy, and many of them have done so as a matter of policy. As Figure 5 shows, Bahrain, Kuwait, Qatar, and UAE stand out in this respect. It is also interesting to note that the availability of resource rents tends to enable women to shift to market activities, especially small firm ownership.

One reason for the widely different result obtained here and many others that find a negative correlation between resource rents and female LFP rate is likely to be the closer comparability of the GEM data compared with the aggregate national measures estimated by the World Bank and International Labor Office, which are the databases commonly used. A second reason seems to be that those studies attempt to explain the aggregate summary statistics of LFP (e.g., World Bank, 2004; Ross, 2008), while our analysis starts from micro data and controls for individual characteristics and the structure of the population. The aggregate approach overlooks the connections among various labor allocation alternatives for an individual (e.g., homemaking, self-employment, full-time and part-time employment, or employer status) and the fact that the determinants of each alternative must have some impact on the other ones as well. The use of aggregate measures also makes it difficult to disentangle the effects of various factors on individual decisions from the role of the population's structure (or "ecology").⁸ As a result, important interactions among labor allocation outcomes and their determinants are misconstrued or left out of the analysis. Capturing such interactions matters because they can provide essential insights about the ways in which the allocation of labor shifts among different alternatives in response to policy and non-policy factors.⁹

To examine the other side of the Oil vs. Islam debate, we include in the regression the share of population identified as Muslim as well as a dummy indicating whether financial maintenance of family expenses is the joint legal responsibility of married couples or not. We add the latter variable because joint responsibility is a strong legal foundation for women's engagement in economic activity and that seems to be an important tenet that is very uncommon among Muslim majority countries. When we enter in the regression the share of Muslims in the population, it has a highly significant coefficient of 0.32 in the Homemaker equation (i.e., going from a society with no Muslim to one with 100 Muslim population, homemaking probability rises by 32 percentage points). This comes at the cost of significantly reduced small firm ownership and part-time, full-time, and self-employment. Including the joint responsibility dummy cuts the coefficients of Muslim population share by about half and some of them lose significance. Instead, the joint responsibility indicator becomes a dominant variable and helps explain the key features of economic participation of women in MENA (Table 9, row 7). The results show that when the legal system's default assumption is that the husband is responsible for family finances, rather than the couple jointly, women's homemaking rate jumps by over 25 percentage points and their probability of SME or large firm formation goes up by more than 15 percentage points. Their probabilities of employment and other positions also fall, but these are spread across multiple alternatives and most of them lack statistical significance

⁸ This is the so-called "ecological inference fallacy," which refers to inferences about the behavior of individuals based on summary statistics of the group to which those individuals belong. For a survey of literature related to this issue, see Morgenstern (2008).

⁹ Norris (2010) also raises similar points and criticizes Ross (2008). She applies a multilevel approach to World Values Survey to show that women's representation in parliament can be explained by egalitarian attitudes and not the absence of oil rent.

individually. Interestingly, when the joint responsibility dummy is included in the regression, the share of Muslim population turns out to be positively related to medium and large firm formation by women, in a way that cancels out the effects of allocation of financial responsibility of the family to the husband. Also, as Table 10 shows, these factors are associated with higher LFP, firm formation, and full-time employment among men in the economy, which is the counterpart of the effect on women. Thus, our results show that the prevalence of Islam seems to be a major determinant of low LFP and low SME formation by women in MENA. However, a key mechanism of this effect appears to be lack of joint financial responsibility under marriage in Islamic societies.

The next variable that we include in the regression is a measure of income inequality, namely the Gini coefficient. The interaction of inequality and women's economic activity is complex and could go both ways. When inequality is higher, more women in the middle and lower part of the family income distribution may feel obliged to work outside home, but it is also possible that the opportunities for them are also more restricted and therefore they may not find it worthwhile to participate. The causality could also go from female LFP to inequality. But, again depending on who participates and how, the effect could be ambiguous. When participation among women of middle and low income families is higher, income distribution may become more equal. However, if the participation is combined with assortative mating, it could lead to increased inequality. Identifying appropriate indicators that could help one discern the two way effects requires a separate study. Here, we include the Gini index in our regressions to get a reading of possible dominant effects. Fortunately, including this index has no tangible impact on our other results, hence it comes at no cost. In any case, the results in Table 9 show that inequality is strongly associated with reduced participation and full-time employment, but increased self-employment, of women. The retirement position also goes down in proportion to reduced full-employment, as one expects. For men, inequality has rather limited negative correlations with education and retirement (Table 10). These observations seem to suggest that while there could be feedback effects, the factors that give rise to inequality limit women's employment options and tend to drive them, at best, toward informal self-employment. MENA countries have not been particularly unequal and this factor does not seem to explain the low female LFP rates there. However, the result points out to the fact that female LFP and equality are likely to go hand in hand.

We next turn to the role of governance characteristics of the country in allocation of labor. Our choice of variable that represents these characteristics is government effectiveness index of WGI, which proves to be positively related to female LFP, particularly in the form of small firm ownership and part-time employment. This factor does not seem to have much impact on the allocation of labor among men, except a small reduction in large firm ownership. It appears that government effectiveness enables smaller female-owned firms to survive and compete more successfully. Unfortunately, this is an area in which most MENA governments are weak. Thus, the results indicate that lack of effective government may be an important factor behind MENA women's low participation and low SME ownership rates. This also points to a key factor that has the potential to be addressed before long by good policy.

The above conclusion is confirmed by the measure of infrastructure quality included in our regressions, namely, the time required to get electricity, derived from the dataset of Doing Business. The estimation results show that longer times to get electricity are associated with reduced small firm ownership by both men and women. The alternatives that rise are unemployment for men and remaining students for women. MENA countries have been improving their infrastructure in recent decades. However, the situation has deteriorated for some of them in recent years, with adverse consequences for firm formation and employment.

In addition to the infrastructure measure, we utilize two measures of regulation from the DB dataset. First is the minimum paid-in capital for starting a business as percent of GDP per capita. This variable raises the cost of enterprise formation and, indeed, is negatively and significantly correlated with small firm ownership. For women, the effect seems to be a shift to full-time employment. For men, interestingly, the consequence is the greater likelihood of emergence of larger firms. The minimum capital requirement tends to be much higher in the MENA region, which may at least help explain a small part of missing female-owned SMEs.

The last DB variable that we consider here is the minimum wage as a ratio of GDP per capita. Tables 9 and 10 show that higher minimum wages are associated with reduced formation of medium and large firms and increased unemployment rates for both men and women. There is also reduced self-employment among men and less educational engagement among women. Minimum wages in MENA are relatively lower than the rates typically set in other countries. Thus, this factor does not seem to be contributing to low firm formation or high unemployment in the MENA region.

The final indicator of country conditions that we consider in this paper is trade freedom (obtained from Freedom of the World Dataset). Using openness or the share of exports in GDP yields results that are by and large similar to those obtained with the trade freedom index. The outcome is consistent with the results of many other studies of trade and employment: More open trade tends to create more full-time employment opportunities for both men and women in similar and significant ways, with a commensurate increase in the probability of retirement and concomitant decline in homemaking rates. Also, for both men and women, small firm ownership and self-employment become less common. Interestingly, the rate of unemployment for men tends to be higher, which could be due to increased competition from women in tradable sector jobs. Lastly, medium and large firm ownership becomes more likely for women. Regarding the conditions of MENA region in these respects, the effects may help explain the lower participation rates because trade openness tends to be relatively low in MENA countries.

8. Conclusion

We have documented a relatively low share of women among SME owners in MENA. This phenomenon appears to be related to the low female LFP rates commonly observed in the region. However, the connection is not straightforward because the rates of large firm ownership by women in MENA are comparable and sometimes higher than some other world regions. To take a step toward understanding this puzzling pattern, we started with a framework that took account of economy-wide interactions between firm ownership, employment, and outside options. We then used a unique cross-country micro dataset and a two-level model to separate out the role of individual characteristics from the influence of country conditions. Our first-level micro analysis suggested that the young age structure of MENA populations helps explain part of MENA women's low participation and low SME formation. At the second level, we found that the prevalence of conservative religious culture, particularly the cultural and legal rule that husbands are financially responsible for their families' expenses, rather than sharing responsibility jointly with their wives, may be a key factor that helps explain the pattern of labor allocation. In addition, lack of government effectiveness, the relative closed-ness of MENA economies, and the gap between educational attainment of women and men in the past have also contributed to women's low LFP and SME ownership. These are all policy areas in which governments can make a difference.

We also explored the role of a number of other factors and showed their roles in labor allocation, though they do not help explain the current weaknesses in patterns of participation and employment in the region. One very notable finding among these was that, in contrast with the results of many other studies, resource rents don't seem to be responsible for low LFP and small firm formation by MENA women. Quite to the contrary, they seem to have helped raise

both of these outcomes in the oil-rich countries of the region. We attribute this sharp difference in findings to the closer cross-country comparability of our data and our micro-based approach.

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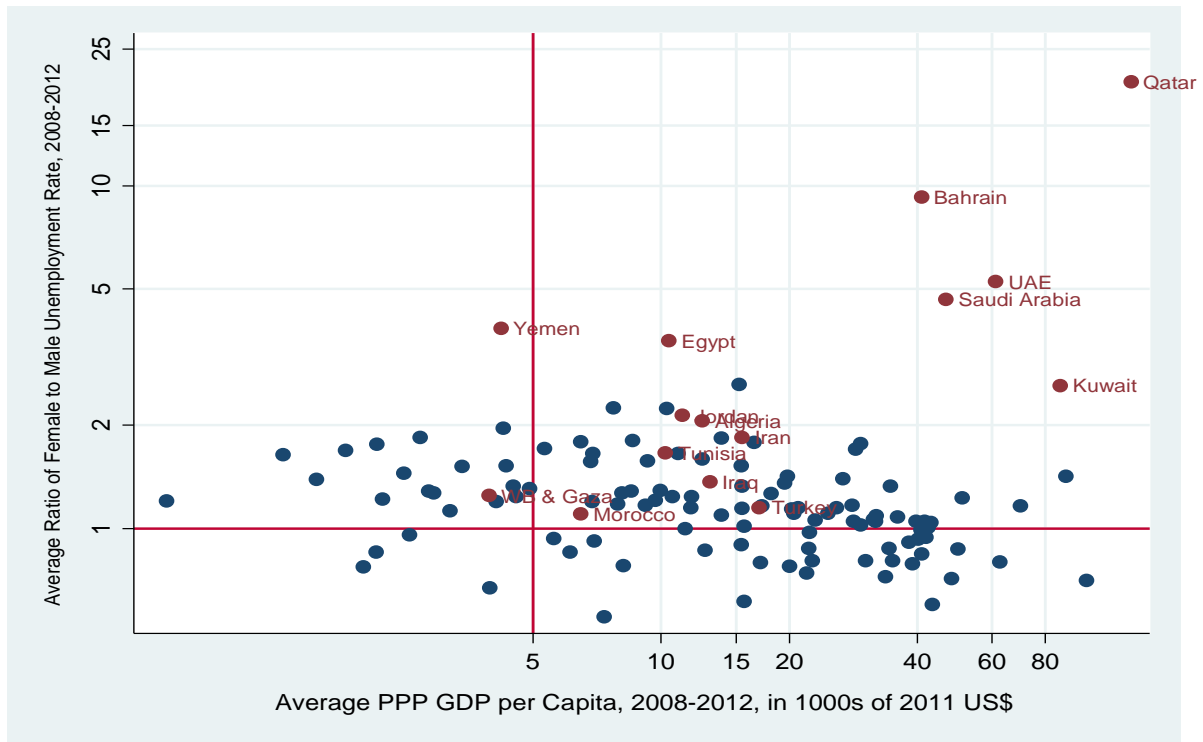
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Figure 1: Ratio of Female to Male Unemployment Rates vs. PPP GDP Per Capita



Source: The World Bank, *World Development Indicators*, 2014.

Figure 2: Ability, Returns to Activities, and Occupational Choice with High outside Option

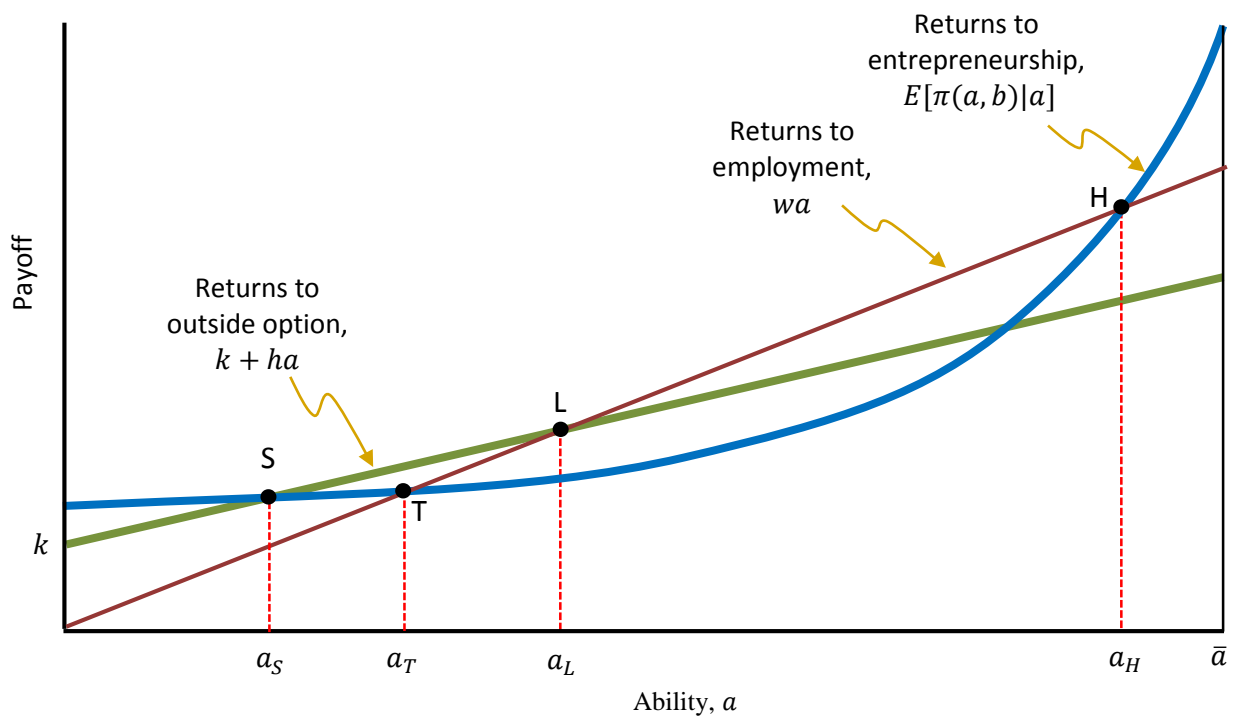


Figure 3: Ability, Returns to Activities, and Occupational Choice with Low outside Option

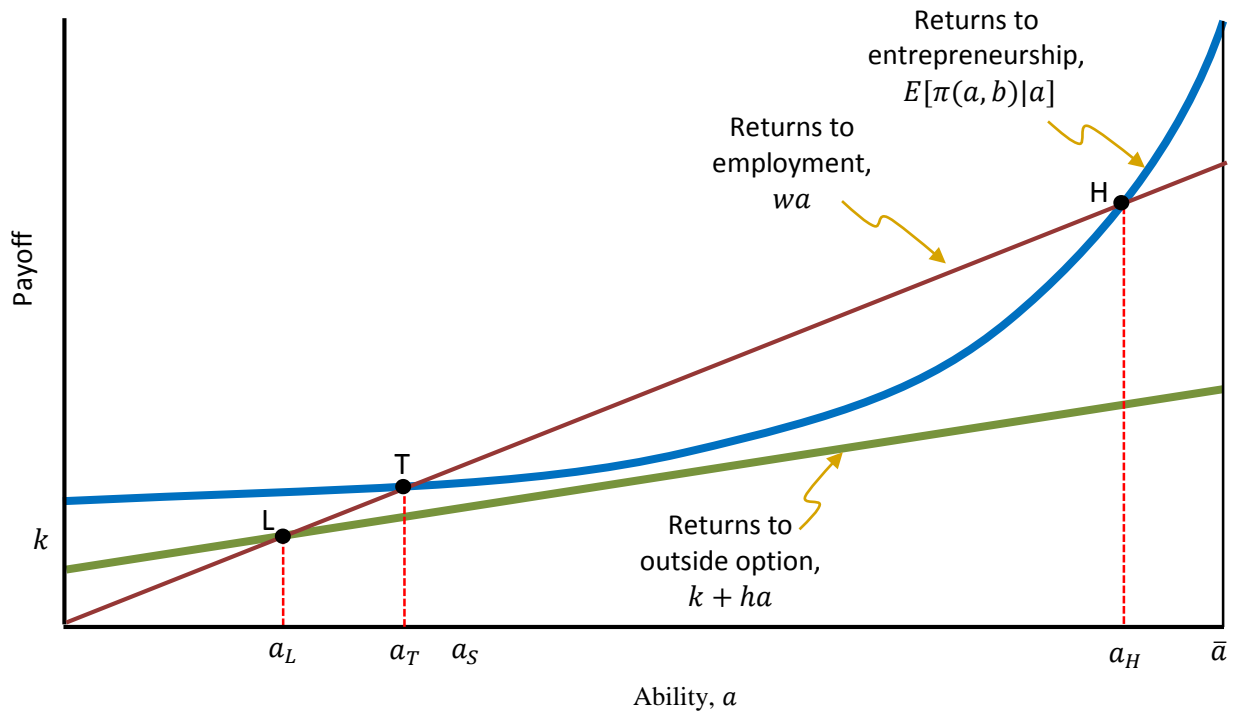


Figure 4: Occupational Choice with Entrepreneurship and Employment Barriers and Higher outside Option

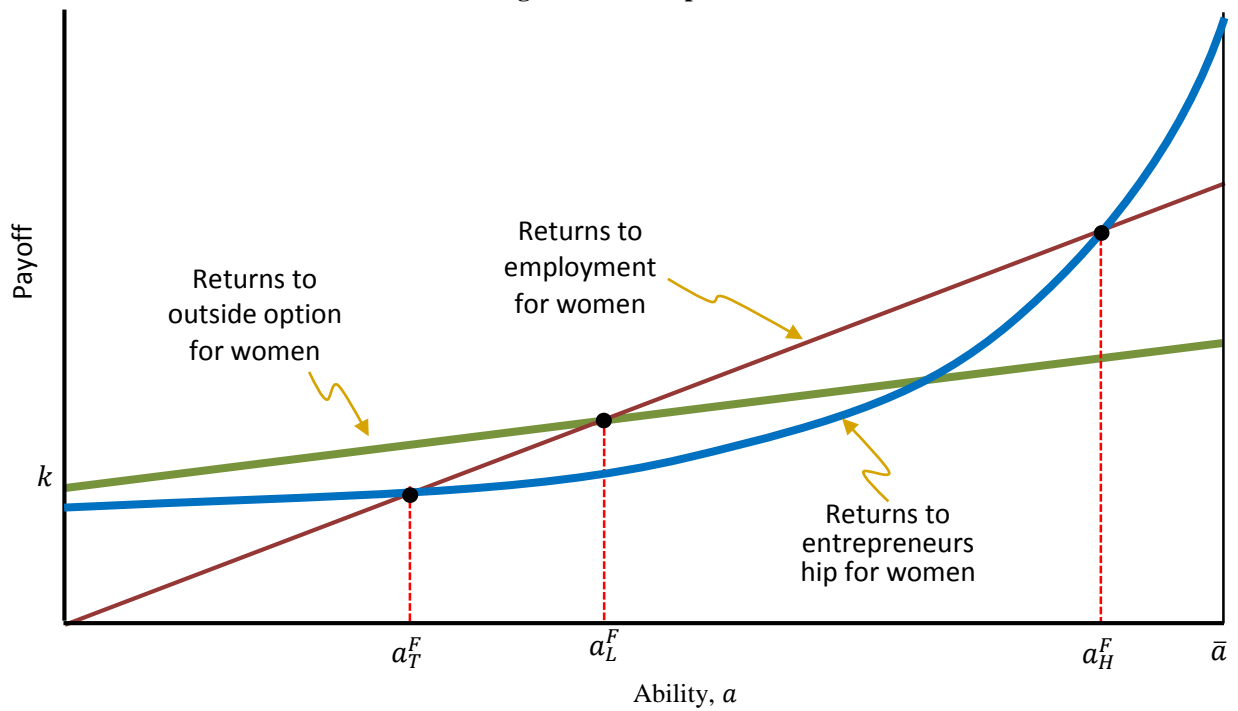
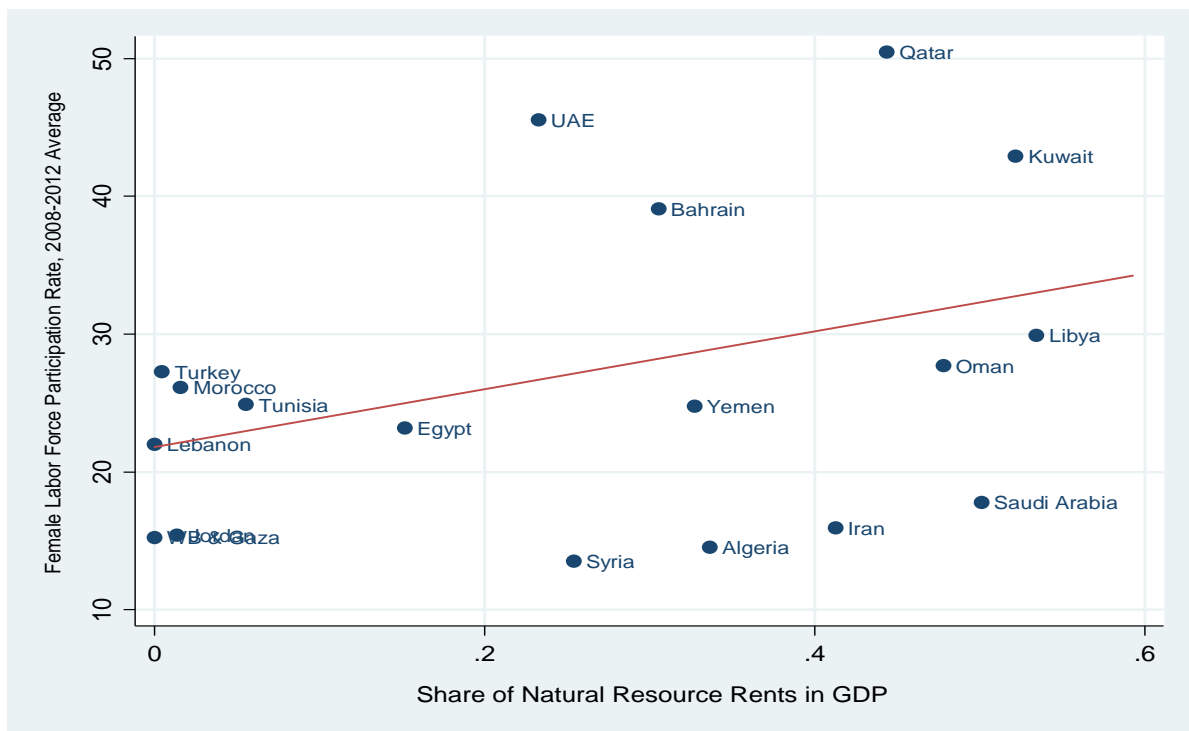


Figure 5: Natural Resource Rents and Female Labor Force Participation Rates in MENA Countries



Source: The World Bank, *World Development Indicators*, 2014.

Table 1: Female Ownership and Firm Size across Regions

Region	Share of Firms with a Female Principal Owner by Size Category GDP Weighted Regional Averages: (Using PPP GDP in Constant 2005 USD)			Percent of Countries in Each Region Where Female Ownership Rises with Firm Size (%)
	Small Firms (Less than 50 Employees) (%)	Large Firms (50 Employees or More) (%)	All Firms (%)	
MENA	15.6	20.4	17.8	81.8
Asia & the Pacific	15.5	12.6	13.8	36.4
Africa	23.3	17.8	22.0	31.3
Latin America/Caribbean	26.5	23.2	25.4	15.8
Eastern and Central Europe	31.3	18.5	25.7	15.0
Caucasus & Central Asia	29.0	16.7	27.0	14.3
European Union	28.2	16.4	26.5	0.0

Notes: Based on the World Bank Enterprise Survey (WBES) Dataset. * See text for the description of the WBES data source.

Table 2: Female Ownership and Firm Size across Regions

Region	Share of Firms with a Female Principal Owner by Size Category GDP Weighted Regional Averages: (Using PPP GDP in Constant 2005 USD)			Percent of Countries in Each Region Where Female Ownership Rises with Firm Size (%)
	Micro Firms (Self- Employed) (%)	Small Firms (Less than 50 Workers) (%)	Large Firms (50 Workers or More) (%)	
MENA	24.5	14.5	24.6	72.7
Asia & the Pacific	49.8	40.2	37.5	33.3
Africa	39.6	35.7	20.0	22.2
Latin America/Caribbean	46.6	41.5	31.5	33.3
Eastern and Central Europe	44.0	40.0	34.4	9.1
Developed Countries	38.5	38.9	26.1	13.0

Notes: Based on the Global Enterprise Monitor (GEM) Dataset. * See text for the description of the GEM data source.

Table 3: Country-Level Shares of Labor Allocation Alternatives by Gender: MENA vs. Other Countries (Percent of Total for Each Gender in Each Country)

Labor Allocation Alternatives	61 Non-MENA Countries				13 MENA Countries			
	Mean	Std. Dev.	Min.	Max.	Mean	Std. Dev.	Min.	Max.
Women								
Homemaker	21.5	15.2	0.3	84.2	55.3	15.3	29.8	73.2
Retired Disabled	8.9	7.1	0.2	30.6	2.5	2.3	0.0	9.0
Student	4.9	6.0	0.2	47.6	8.7	4.5	3.1	18.3
Unemployed	8.4	7.0	0.2	34.5	5.8	3.5	1.8	12.7
Part-Time Employee	10.7	8.3	1.6	36.9	4.2	2.6	1.6	9.5
Full-Time Employee	29.8	13.9	4.7	58.6	16.1	9.8	4.2	36.3
Self-Employed	4.1	5.2	0.0	21.9	1.8	1.0	0.5	3.5
Small Firm Employer	11.0	11.4	0.6	58.4	4.9	4.0	0.0	12.8
Medium/Large Firm Employer	0.7	0.5	0.0	2.6	0.6	0.7	0.0	2.3
Men								
Homemaker	1.9	3.7	0.0	20.6	0.5	0.3	0.2	1.2
Retired Disabled	9.3	6.1	0.6	26.9	6.1	4.3	0.2	13.2
Student	4.3	2.4	0.6	12.1	7.5	4.0	1.9	16.8
Unemployed	9.3	6.4	0.5	31.9	9.9	6.4	1.7	22.7
Part-Time Employee	6.9	4.8	0.7	23.9	9.4	6.7	2.1	26.6
Full-Time Employee	44.4	13.8	10.3	65.3	39.6	17.1	11.8	75.6
Self-Employed	6.5	7.2	0.0	39.3	7.1	5.5	1.2	20.7
Small Firm Employer	15.5	11.3	0.6	56.8	17.1	11.2	0.1	37.4
Medium/Large Firm Employer	1.9	1.2	0.1	5.5	2.9	2.3	0.1	8.6

Source: Authors' calculations based on GEM dataset.

Table 4: Summary of Country-Level Means of the Individual Characteristics Used in Probit Regressions

Labor Allocation Alternatives	61 Non-MENA Countries				13 MENA Countries			
	Mean	Std. Dev.	Min.	Max.	Mean	Std. Dev.	Min.	Max.
Women's Characteristics								
Ages 20-29 Dummy	0.231	0.103	0.093	0.533	0.366	0.064	0.241	0.483
Ages 30-39 Dummy	0.244	0.047	0.155	0.339	0.277	0.033	0.213	0.331
Ages 40-49 Dummy	0.226	0.040	0.116	0.323	0.199	0.024	0.158	0.241
Ages 50-59 Dummy	0.188	0.061	0.043	0.297	0.119	0.038	0.061	0.205
Ages 60-69 Dummy	0.110	0.061	0.016	0.249	0.039	0.020	0.008	0.076
Some Secondary Education	0.179	0.113	0.000	0.445	0.208	0.099	0.049	0.331
Secondary Education	0.337	0.140	0.061	0.644	0.282	0.107	0.102	0.454
Post-Secondary Education	0.282	0.173	0.021	0.878	0.256	0.177	0.040	0.773
Graduate Education	0.036	0.066	0.000	0.347	0.021	0.044	0.000	0.162
All Other Education Categories	0.165	0.204	0.000	1.017	0.234	0.163	0.008	0.595
Men's Characteristics								
Ages 20-29 Dummy	0.240	0.089	0.094	0.517	0.373	0.060	0.292	0.499
Ages 30-39 Dummy	0.232	0.042	0.155	0.325	0.264	0.040	0.219	0.351
Ages 40-49 Dummy	0.224	0.031	0.142	0.302	0.185	0.027	0.118	0.227
Ages 50-59 Dummy	0.188	0.051	0.049	0.291	0.132	0.036	0.085	0.217
Ages 60-69 Dummy	0.116	0.060	0.020	0.271	0.047	0.020	0.015	0.079
Some Secondary Education	0.176	0.116	0.000	0.439	0.216	0.114	0.070	0.410
Secondary Education	0.359	0.144	0.095	0.699	0.312	0.146	0.141	0.727
Post-Secondary Education	0.288	0.169	0.025	0.836	0.284	0.169	0.050	0.724
Graduate Education	0.040	0.068	0.000	0.392	0.027	0.040	0.000	0.151
All Other Education Categories	0.137	0.174	0.000	0.885	0.161	0.128	0.008	0.422

Source: Authors' calculations based on GEM dataset.

Table 5: Multinomial Probit Model of Female Labor Allocation†

Age, Education, and Female Labor Allocation Alternatives: Marginal Probability Effects Based on a Multinomial Probit Model with Country Fixed Effects									
Explanatory Variables	Home-maker	Retired Disabled	Student	Unemployed	Part-Time Employee	Full-Time Employee	Self-Employed	Small Firm Owner	Medium/ Large Owner
Ages 30-39 Dummy	0.063 ^{***} (0.009)	-0.019 ^{**} (0.007)	-0.099 ^{***} (0.006)	-0.039 ^{***} (0.005)	-0.001 (0.004)	0.037 ^{***} (0.008)	0.01 ^{***} (0.003)	0.044 ^{***} (0.005)	0.003 ^{***} (0.001)
Ages 40-49 Dummy	0.054 ^{***} (0.011)	0.012 (0.009)	-0.122 ^{***} (0.01)	-0.056 ^{***} (0.006)	0.004 (0.005)	0.033 ^{***} (0.009)	0.01 ^{***} (0.003)	0.061 ^{***} (0.005)	0.004 ^{***} (0.001)
Ages 50-59 Dummy	0.055 ^{***} (0.012)	0.089 ^{***} (0.009)	-0.126 ^{***} (0.01)	-0.057 ^{***} (0.007)	-0.018 ^{**} (0.006)	-0.004 (0.01)	0.007 ^{**} (0.003)	0.05 ^{***} (0.005)	0.004 ^{***} (0.001)
Ages 60-69 Dummy	0.096 ^{***} (0.015)	0.19 ^{***} (0.008)	-0.105 ^{***} (0.01)	-0.063 ^{***} (0.009)	-0.031 ^{***} (0.008)	-0.154 ^{***} (0.011)	0.008 ^{**} (0.004)	0.053 ^{***} (0.006)	0.006 ^{***} (0.001)
Some Secondary Education	-0.075 ^{***} (0.012)	0.003 (0.005)	0.022 ^{**} (0.009)	-0.001 (0.005)	0.007 (0.005)	0.059 ^{***} (0.011)	-0.005 (0.003)	-0.01 [*] (0.005)	0.00 (0.001)
Secondary Education	-0.178 ^{***} (0.014)	0.002 (0.005)	0.056 ^{***} (0.012)	-0.012 [*] (0.007)	0.012 [*] (0.007)	0.143 ^{***} (0.013)	-0.007 [*] (0.003)	-0.018 ^{***} (0.006)	0.003 ^{**} (0.001)
Post-Secondary Education	-0.281 ^{***} (0.014)	0.001 (0.007)	0.044 ^{**} (0.016)	-0.021 ^{***} (0.006)	0.016 ^{**} (0.008)	0.247 ^{***} (0.014)	-0.005 (0.004)	-0.007 (0.008)	0.006 ^{***} (0.001)
Graduate Education	-0.37 ^{***} (0.024)	-0.007 (0.01)	0.045 ^{**} (0.016)	-0.025 ^{**} (0.012)	0.016 (0.011)	0.315 ^{***} (0.017)	0.007 (0.005)	0.012 (0.01)	0.008 ^{***} (0.002)
Other	-0.267 ^{***} (0.035)	-0.009 (0.012)	0.028 ^{**} (0.014)	-0.015 (0.009)	0.003 (0.009)	0.236 ^{***} (0.026)	0.004 (0.005)	0.015 (0.012)	0.004 (0.002)
Number of Observations	167,590	167,590	167,590	167,590	167,590	167,590	167,590	167,590	167,590

Notes: †The model includes country dummies, which are used for assessing the marginal probabilities of country fixed effects. Standard errors are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 6: Multinomial Probit Model of Male Labor Allocation†

Explanatory Variables	Age, Education, and Male Labor Allocation Alternatives: Marginal Probability Effects Based on a Multinomial Probit Model with Country Fixed Effects								
	Home-maker	Retired Disabled	Student	Unemployed	Part-Time Employee	Full-Time Employee	Self-Employed	Small Firm Owner	Medium/ Large Owner
Ages 30-39 Dummy	-0.007*** (0.004)	-0.006** (0.009)	-0.1*** (0.007)	-0.049*** (0.004)	-0.021 (0.003)	0.097*** (0.008)	0.012*** (0.003)	0.064*** (0.005)	0.009*** (0.002)
Ages 40-49 Dummy	-0.006*** (0.004)	0.039 (0.01)	-0.127*** (0.006)	-0.06*** (0.005)	-0.03 (0.004)	0.072*** (0.009)	0.011*** (0.003)	0.087*** (0.006)	0.015*** (0.002)
Ages 50-59 Dummy	-0.002*** (0.004)	0.112*** (0.01)	-0.12*** (0.008)	-0.053*** (0.006)	-0.03** (0.004)	-0.011 (0.009)	0.009** (0.004)	0.08*** (0.007)	0.015*** (0.001)
Ages 60-69 Dummy	0.005*** (0.004)	0.227*** (0.01)	-0.089*** (0.011)	-0.042*** (0.008)	-0.015*** (0.005)	-0.218*** (0.013)	0.014** (0.006)	0.101*** (0.007)	0.018*** (0.002)
Some Secondary Education	-0.008*** (0.002)	-0.002 (0.004)	0.034** (0.009)	-0.026 (0.006)	-0.013 (0.005)	0.027*** (0.009)	-0.01 (0.005)	-0.005* (0.006)	0.002 (0.002)
Secondary Education	-0.014*** (0.003)	-0.015 (0.005)	0.074*** (0.009)	-0.059* (0.006)	-0.024* (0.006)	0.079*** (0.012)	-0.026* (0.005)	-0.023*** (0.006)	0.008** (0.002)
Post-Secondary Education	-0.019*** (0.004)	-0.029 (0.006)	0.063** (0.009)	-0.08*** (0.006)	-0.029** (0.007)	0.132*** (0.015)	-0.028 (0.007)	-0.023 (0.009)	0.012*** (0.002)
Graduate Education	-0.026*** (0.003)	-0.044 (0.007)	0.064** (0.012)	-0.106** (0.011)	-0.033 (0.007)	0.177*** (0.017)	-0.034 (0.009)	-0.016 (0.016)	0.018*** (0.003)
Other	-0.017*** (0.004)	-0.031 (0.008)	0.056** (0.011)	-0.078 (0.015)	-0.022 (0.01)	0.112*** (0.02)	-0.02 (0.009)	-0.013 (0.017)	0.013 (0.007)
Number of Observations	154,387	154,387	154,387	154,387	154,387	154,387	154,387	154,387	154,387

Notes: †The model includes country dummies, which are used for assessing the marginal probabilities of country fixed effects. Standard errors are shown in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Table 7: Summary Statistics of Marginal Probability Effects of Country by Gender: MENA vs. Other Countries

Labor Allocation Alternatives	61 Non-MENA Countries				13 MENA Countries			
	Mean	Std. Dev.	Min.	Max.	Mean	Std. Dev.	Min.	Max.
Women								
Homemaker	-0.114	0.131	-0.330	0.387	0.208	0.127	0.000	0.407
Retired Disabled	-0.008	0.042	-0.072	0.118	-0.034	0.032	-0.082	0.034
Student	-0.036	0.050	-0.085	0.316	-0.025	0.029	-0.064	0.057
Unemployed	-0.011	0.070	-0.099	0.213	-0.050	0.029	-0.087	0.003
Part-Time Employee	0.063	0.084	-0.027	0.336	-0.001	0.028	-0.029	0.074
Full-Time Employee	0.057	0.121	-0.145	0.328	-0.069	0.080	-0.180	0.051
Self-Employed	-0.005	0.052	-0.045	0.194	-0.025	0.013	-0.040	0.000
Small Firm Employer	0.058	0.119	-0.049	0.552	-0.001	0.043	-0.056	0.091
Medium/Large Firm Employer	-0.005	0.005	-0.012	0.012	-0.004	0.006	-0.010	0.009
Men								
Homemaker	0.011	0.034	-0.008	0.189	-0.002	0.003	-0.006	0.004
Retired Disabled	-0.017	0.035	-0.091	0.087	-0.012	0.046	-0.086	0.064
Student	-0.035	0.021	-0.070	0.025	-0.025	0.024	-0.068	0.028
Unemployed	-0.019	0.065	-0.113	0.231	-0.028	0.057	-0.097	0.084
Part-Time Employee	0.007	0.045	-0.057	0.172	0.025	0.060	-0.042	0.168
Full-Time Employee	0.073	0.134	-0.248	0.275	0.016	0.153	-0.236	0.332
Self-Employed	-0.038	0.072	-0.102	0.290	-0.028	0.053	-0.090	0.102
Small Firm Employer	0.014	0.115	-0.135	0.429	0.037	0.111	-0.139	0.231
Medium/Large Firm Employer	0.002	0.010	-0.016	0.029	0.016	0.022	-0.004	0.073

Source: Authors' calculations based on GEM dataset.

Table 8: Summary Statistics of Variables Included in Cross-Country Regressions

Explanatory Variables	Non-MENA Countries					MENA Countries				
	Mean	Std. Dev.	Min.	Max.	Number of Observations	Mean	Std. Dev.	Min.	Max.	Number of Observations
Log of PPP GDP per Capita in 2005 Prices	9.024	1.237	6.457	11.515	172	9.713	1.063	7.888	11.754	20
Log of PPP GDP per Capita in 2005 Prices Squared	82.952	22.068	41.696	132.591	172	95.408	20.934	62.227	138.148	20
Log of the Ratio of Average Years of Schooling of Women over Men	-0.271	0.378	-2.037	0.347	154	-0.470	0.399	-1.642	-0.029	19
Share of Agriculture in GDP (%)	14.160	13.644	0.000	65.922	166	8.145	5.363	1.073	18.885	14
Share of Natural Resource Rents in GDP	0.075	0.143	0.000	0.747	180	0.276	0.251	0.000	0.924	20
Share of Muslims in Total Population (%)	0.160	0.278	0.000	0.992	171	0.887	0.132	0.424	0.989	19
Dummy for Joint Legal Responsibility of Married Couples for Financial Maintenance of Family Expenses	0.937	0.245	0.000	1.000	126	0.333	0.488	0.000	1.000	15
Gini Index	0.402	0.100	0.110	0.658	153	0.365	0.043	0.300	0.450	18
WGI Government Effectiveness Indicator	0.001	1.025	-2.193	2.246	177	-0.280	0.660	-1.680	0.809	20
Time to Get Electricity (Month)	4.130	3.114	0.567	19.500	163	2.574	1.324	1.167	6.000	19
Minimum Paid-in Capital for Starting a Business (Share of GDP per Capita)	1.874	8.857	0.000	87.514	169	6.084	10.779	0.018	46.364	20
Minimum Wage as a Ratio of GDP per Capita	0.331	0.309	0.000	2.260	161	0.270	0.279	0.000	0.848	17
Trade Freedom Index (Scaled to 0 -1 Range)	0.695	0.138	0.000	0.925	161	0.641	0.139	0.352	0.809	18

Table 9: Explaining the Country Fixed Effects for Female Labor Allocation

Dependent Variables: Marginal Probability Changes of Female Labor Allocation Alternatives Due to Country Fixed Effects. Estimation Method: Structural Equation Modeling

Explanatory Variables	Home-maker	Retired Disabled	Student	Unemployed	Part-Time Employee	Full-Time Employee	Self-Employed	Small Firm Owner	Medium/Large Owner
Log of PPP GDP per Capita in 2005 Prices	-0.498 (0.336)	0.258** (0.119)	0.091 (0.178)	0.399* (0.234)	-0.138 (0.238)	0.637* (0.339)	-0.197 (0.127)	-0.510*** (0.188)	-0.041*** (0.014)
Log of PPP GDP per Capita in 2005 Prices Squared	0.031* (0.018)	-0.014** (0.006)	-0.005 (0.010)	-0.024* (0.013)	0.009 (0.013)	-0.033* (0.018)	0.010 (0.007)	0.023** (0.010)	0.002*** (0.001)
Log of the Ratio of Average Years of Schooling of Women over Men	-0.085 (0.077)	0.043 (0.027)	-0.080** (0.041)	0.073 (0.054)	-0.087 (0.055)	0.047 (0.078)	-0.002 (0.029)	0.091** (0.043)	-0.000 (0.003)
Share of Agriculture in GDP (%)	-0.003 (0.004)	0.001 (0.001)	-0.004* (0.002)	-0.003 (0.003)	-0.000 (0.003)	0.002 (0.004)	-0.001 (0.001)	0.007*** (0.002)	0.000** (0.000)
Share of Natural Resource Rents in GDP	-0.455*** (0.119)	0.048 (0.042)	-0.016 (0.063)	0.061 (0.083)	0.001 (0.084)	0.110 (0.120)	0.060 (0.045)	0.185*** (0.067)	0.006 (0.005)
Share of Muslims in Total Population (%)	0.161*** (0.061)	0.018 (0.022)	0.010 (0.032)	0.025 (0.043)	-0.040 (0.043)	-0.093 (0.062)	-0.047** (0.023)	-0.042 (0.034)	0.008*** (0.003)
Dummy for Joint Legal Responsibility of Married Couples for Family Finances	-0.255*** (0.053)	0.039** (0.019)	0.029 (0.028)	0.037 (0.037)	0.048 (0.037)	0.019 (0.053)	-0.000 (0.020)	0.075** (0.029)	0.008*** (0.002)
Gini Index	0.556*** (0.182)	-0.178*** (0.064)	0.046 (0.096)	-0.222* (0.127)	0.119 (0.129)	-0.493*** (0.184)	0.115* (0.069)	0.045 (0.102)	0.011 (0.008)
WGI Government Effectiveness Indicator	-0.094*** (0.029)	0.003 (0.010)	-0.006 (0.015)	0.026 (0.020)	0.044** (0.021)	0.013 (0.029)	-0.014 (0.011)	0.028* (0.016)	-0.001 (0.001)
Time to Get Electricity (Month)	-0.006 (0.005)	0.005*** (0.002)	0.006** (0.003)	0.001 (0.004)	0.003 (0.004)	0.001 (0.005)	-0.002 (0.002)	-0.009*** (0.003)	0.000 (0.000)
Minimum Paid-in Capital for Starting a Business (Share of GDP per Capita)	-0.004 (0.002)	0.001 (0.001)	0.001 (0.001)	-0.001 (0.002)	0.001 (0.002)	0.004* (0.002)	-0.000 (0.001)	-0.003** (0.001)	0.000 (0.000)
Minimum Wage as a Ratio of GDP per Capita	-0.084 (0.068)	0.039 (0.024)	-0.065* (0.036)	0.117** (0.047)	-0.008 (0.048)	0.064 (0.069)	-0.041 (0.026)	-0.015 (0.040)	-0.006** (0.003)
Trade Freedom Index (Scaled to 0 -1 Range)	-0.523*** (0.197)	0.190*** (0.070)	0.048 (0.104)	0.113 (0.137)	-0.070 (0.140)	0.544*** (0.199)	-0.140* (0.075)	-0.181* (0.110)	0.018** (0.008)
Constant	2.311 (1.633)	-1.339** (0.578)	-0.531 (0.864)	-1.627 (1.138)	0.446 (1.157)	-3.267** (1.650)	1.038* (0.619)	2.817*** (0.913)	0.152** (0.068)
Number of Observations	63	63	63	63	63	63	63	63	63

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Table 10: Explaining the Country Fixed Effects for Male Labor Allocation

Dependent Variables: Marginal Probability Changes of Female Labor Allocation Alternatives Due to Country Fixed Effects. Estimation Method: Structural Equation Modeling

Explanatory Variables	Home-maker	Retired Disabled	Student	Unemployed	Part-Time Employee	Full-Time Employee	Self-Employed	Small Firm Owner	Medium/Large Owner
Log of PPP GDP per Capita in 2005 Prices	-0.105*	0.183*	0.050	0.411**	0.018	0.440	-0.191	-0.695***	-0.112***
	(0.059)	(0.111)	(0.062)	(0.185)	(0.156)	(0.308)	(0.205)	(0.250)	(0.039)
Log of PPP GDP per Capita in 2005 Prices Squared	0.006*	-0.010*	-0.003	-0.024**	-0.001	-0.017	0.009	0.034**	0.007***
	(0.003)	(0.006)	(0.003)	(0.010)	(0.008)	(0.016)	(0.011)	(0.013)	(0.002)
Log of the Ratio of Average Years of Schooling of Women over Men	-0.008	0.052*	-0.030**	0.022	-0.065*	-0.124*	0.013	0.133**	0.009
	(0.014)	(0.027)	(0.015)	(0.045)	(0.038)	(0.076)	(0.050)	(0.061)	(0.010)
Share of Agriculture in GDP (%)	0.002***	-0.000	-0.001*	-0.002	-0.002	0.001	-0.004	0.005*	0.001*
	(0.001)	(0.001)	(0.001)	(0.002)	(0.002)	(0.004)	(0.003)	(0.003)	(0.000)
Share of Natural Resource Rents in GDP	-0.003	0.029	0.060**	0.048	-0.058	-0.136	0.019	0.032	0.009
	(0.022)	(0.042)	(0.023)	(0.070)	(0.059)	(0.116)	(0.077)	(0.094)	(0.015)
Share of Muslims in Total Population (%)	-0.025**	0.043**	0.007	0.039	-0.055*	-0.090	-0.003	0.056	0.027***
	(0.011)	(0.021)	(0.012)	(0.035)	(0.030)	(0.059)	(0.039)	(0.048)	(0.008)
Dummy for Joint Legal Responsibility of Married Couples for Family Finances	0.003	0.014	0.015	0.003	-0.036	-0.102**	0.024	0.071*	0.009
	(0.010)	(0.018)	(0.010)	(0.030)	(0.025)	(0.050)	(0.033)	(0.040)	(0.006)
Gini Index	-0.037	-0.116*	-0.077**	-0.164	0.099	0.059	0.115	0.086	0.035
	(0.034)	(0.063)	(0.035)	(0.106)	(0.089)	(0.176)	(0.117)	(0.143)	(0.022)
WGI Government Effectiveness Indicator	-0.001	0.003	0.004	0.011	-0.000	0.004	-0.029	0.015	-0.007**
	(0.005)	(0.010)	(0.006)	(0.017)	(0.014)	(0.028)	(0.019)	(0.023)	(0.004)
Time to Get Electricity (Month)	0.000	0.003	-0.003***	0.009***	-0.000	0.005	-0.001	-0.012***	-0.000
	(0.001)	(0.002)	(0.001)	(0.003)	(0.003)	(0.005)	(0.003)	(0.004)	(0.001)
Minimum Paid-in Capital for Starting a Business (Share of GDP per Capita)	-0.001	-0.000	-0.000	-0.001	-0.002	0.003	0.003*	-0.003*	0.000*
	(0.000)	(0.001)	(0.000)	(0.001)	(0.001)	(0.002)	(0.001)	(0.002)	(0.000)
Minimum Wage as a Ratio of GDP per Capita	-0.002	0.041*	0.014	0.101**	0.025	-0.040	-0.097**	-0.022	-0.019**
	(0.013)	(0.024)	(0.013)	(0.040)	(0.034)	(0.067)	(0.044)	(0.054)	(0.008)
Trade Freedom Index (Scaled to 0 -1 Range)	-0.070*	0.099	0.024	0.307***	-0.247**	0.420**	-0.139	-0.433***	0.040
	(0.037)	(0.069)	(0.038)	(0.115)	(0.097)	(0.192)	(0.127)	(0.156)	(0.024)
Constant	0.524*	-0.906*	-0.233	-1.919**	0.094	-2.817*	1.071	3.779***	0.407**
	(0.289)	(0.542)	(0.301)	(0.904)	(0.763)	(1.506)	(1.001)	(1.222)	(0.192)
Number of Observations	63	63	63	63	63	63	63	63	63

Notes: Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1.