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Explaining the Gender Gap in Entrepreneurial Propensity



Sana' Kamal and Yousef Daoud

Abstract This study investigates the gender gap in entrepreneurial activity rates using the Conditional Mixed Process estimator (CMP) and controlling for the possible endogeneity of perceptual variables. We use the Global Entrepreneurship Monitor (GEM) adult population survey data for 12 countries. We find that the gender gap in activity rates shrinks drastically from -0.37 to -0.06 after controlling for observed traits, perceptual variables, and correcting for endogeneity using CMP. Our choice of instrument and estimation technique implies that CMP is more efficient and that unobserved factors still play a role in explaining the entrepreneurial decision. Unlike what is typically found in the literature that the gap disappears and becomes insignificant when endogeneity and control variables are added. However, in line with the argument that the gender gap in activity rates can be explained by skill perception and other covariates.

Keywords Entrepreneurship · Gender · Endogeneity

1 Introduction

The decision to start a business entails specific characteristics; the entrepreneur (whether male or female) recognizes that the income stemming from entrepreneurial activity is not steady, the work hours may be longer and irregular, interaction with suppliers and customers is socially and psychologically demanding, and, finally, dealing with government regulators and tax administration may be another source of

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S. Kamal

Master Program in Economics, Birzeit University, Birzeit, Palestine

Y. Daoud (✉)

Master Program in Economics, Birzeit University, Birzeit, Palestine

MDE Program, Doha Institute for Graduate Studies, Al-Daayen, Qatar

e-mail: Yousef.Daoud@Dohainstitute.edu.qa

anxiety. More often than not, these are serious considerations that encourage individuals to opt for wage employment over starting a business, but that may not be the case equally for men and women. Numerous studies, encouraged by the availability of Global Entrepreneurship Monitor (GEM) data, have surfaced in the last two decades investigating the gender gap¹ in activity rates and why such a gap exists. Identifying the sources of the gap is useful in designing policies which increase female entrepreneurial activity rates especially in a region where female participation in the labor market is very low despite the high enrollment rates for women in most Middle East and North Africa (MENA) countries.

It has been found by many that men are more pre-disposed to being involved in business creation than women. For example, Klapper and Parker (2011) and Estrin and Mickiewicz (2009) show that this finding applies to a wide spectrum of countries across the various development phases. However, there is less of an agreement on what are the underlying causes of this gap. A few studies attributed gender differences to psychological differences; Verheul et al. (2011), Croson and Gneezy (2009), Niederle and Vesterlund (2007), and Bönthe and Piegeler (2013) all emphasize women's lower relative aptitude for risk tolerance. In their view men are more likely to embrace competition while women fear it or shy away from it. Another breed of literature emphasized personal attributes as control variables in the determination of activity rates (including gender), among which Ozdemir and Karadeniz (2009), Llussá (2010), Ardagna and Lusardi (2008) and Pete et al. (2010). Special focus has been given to perceptual variables as fear of failure and skill perception, see for example Koellinger et al. (2007), Gonzalez-Alvarez et al. (2012) and Daoud et al. (2015).

The gender gap in activity rates has been addressed in the majority of works in a single limited dependent variable multiple regression model which may suffer from endogeneity bias (Ozdemir and Karadeniz 2009; Llussá 2010; Ardagna and Lusardi 2008; Pete et al. 2010; Arenius and Minniti 2005; Lee et al. 2004) to name a few. The potential endogeneity of perceptual variables has led to the use of IV estimation. Koellinger et al. (2013) found that skill perception and fear of failure are important variables in explaining the gender gap in activity rates, but there remains unobservable characteristics which affect male-female disparity in activity rates. The use of multi-step IV estimation is more appropriate for linear models, while Conditional Mixed Process (CMP) Modeling leads to more efficient estimation (Daoud et al. 2015; Roodman 2009).

In this paper we investigate the gender gap in activity rates and the degree to which it is explained by personal traits using the CMP model. We argue that using the appropriate estimation methodology, a small portion of the gender gap remains significant and is explainable by the set of explanatory variables implying the existence of unobserved characteristics. Particular attention is given to Palestine, a factor driven economy in GEM reports; it has low activity rates and very high fear of failure rates compared to other countries in its class. Unemployment reached a high 43.6% and 30.6% among age groups 15–24 and 25–34 years respectively in 2014

¹The gender gap is often measured by the difference between female and male activity rates (for example total early stage entrepreneurial rate), or at times the ratio of male to female activity rates.

(PCBS 2015). This highlights the importance of studying entrepreneurship as a potential solution to a problem for a land-locked economy under occupation. The dependence on the Israeli labor market as a short term solution to the unemployment problem is a double edge sword; on the one hand it is not sustainable in the long run, and on the other hand it creates unnecessary hardships during interruption; resulting from closures and political maneuvering in the short run.

The next section of this paper provides a review of the relevant literature and theoretical framework. Section 3 provides the data description, empirical model and methodology section. Section 4 gives a robustness check of the model and Sect. 5 concludes.

2 Literature Review and Theoretical Framework

The discussion below points to various determinants of activity rates, chief among which is individual perceptions (Reynolds et al. 2003; Arenius and Minniti 2005). The literature also points to knowing other individuals who started a business in the past 12 months (Shane and Venkataraman 2000; Pete et al. 2010; Davidsson and Honig 2003; Steier 2000; Koellinger et al. 2007; Minniti 2005). Fear of failure has a negative impact on starting a business (Arenius and Minniti 2005; Minniti and Nardone 2007; Wagner 2004; Helms 2003). Moreover a part of the gender differences in entrepreneurship could be explained by fear of failure; Wagner (2004) found that fear of failure has higher negative impact on women than it does on men.

It is reported that other socioeconomic factors such as gender, age, education, household income and work status affect individual decisions in starting a business (Koellinger et al. 2007; Blanchflower 2004; Pete et al. 2010; Levesque and Minniti 2006). Moreover, some of these variables such as education and level of income could act as moderating variables of individual's perceptions rather than having a direct impact on starting a new business (Koellinger et al. 2007). Interestingly, women and men entrepreneurs have different characteristics; women entrepreneurs are slightly older, more frequently at home or not working, have lower income, less educated, and with less access to specific skills than their male counterparts (Llussá 2010). Another empirical regularity commonly found that the vast majority of women are more likely to start a business because of necessity than men (Kelly et al. 2012). There is also some evidence that age and income may be non-linearly related to the entrepreneurial decision (Hintermaier and Steinberger 2005; Van Stel et al. 2003).

Finally, Cuervo et al. (2007) summarized the incidence of entrepreneurship by three basic ideas: the first focuses on individual's characteristics that differentiate entrepreneurs from the rest of society such as taking risks, the need for achievements and the ability to face uncertainty. The second is related to the economic and environmental factors that motivate entrepreneurship such as market structure and technological changes; and the third is about the institutions' performance and culture and societal values. However, these factors are not exclusive (Cuervo et al.

2007; Eckhardt and Shane 2003) and could act together in affecting individual decisions to setting up businesses.

A theoretical framework for analyzing gender differences in risk taking behavior could be found in Stark and Zawojka (2015); they explain gender differences² by the value assigned to social status in the marriage market. Men take risk in search of a higher social status (proxy for wealth) which is more important for them in the marriage market than is the case for women. In other words, single men have a stronger distaste for a low social status (lower wealth) and thus are more likely to assume more risk to avoid the “inferior outcomes” in the marriage market. They emphasize that “men” rather than “individuals” and “relative wealth” instead of “wealth” is what matters in reference to Roussanov and Savor (2014) model.

Female’s higher opportunity cost of entrepreneurship is another reason often cited for the higher female risk aversion. Koellinger et al. (2013) studied the determinants of nascent entrepreneurship activities in 17 countries using the GEM data. They focused on the gender gap in entrepreneurship, and controlled the endogeneity that they observed through the recursive simultaneous-equation bivariate probit model. They pointed out that the gender gap in business start-up is mainly due to women’s lower propensity to start businesses rather than to the differences in survival rates across genders. In their study, the gender gap disappeared after the control for the endogeneity. In addition, Daoud et al. (2015), investigated the determinants of fear of failure and entrepreneurship. They controlled the problem of endogeneity between fear of failure and entrepreneurship by using the Conditional Mixed Process (CMP) regression developed by Roodman (2009). They observed a significant gender gap; even after controlling endogeneity, indicating that gender is an important factor in predicting the probability of starting business. This study applied the CMP on several countries for the period 2009, 2010 and 2012 and found that a substantial portion for the gender gap in entrepreneurship was due to unobserved factors.

Indeed, our study builds on Daoud et al. (2015) and extends the data set to include 12 countries for 4 years (2008–2010 and 2012) to investigate the determinants of entrepreneurship and to check what happens to the gender gap after controlling the endogeneity through the CMP model on a larger sample. Based on Roodman (2009), the CMP could yield to more efficient and unbiased estimation. Figure 1 below shows the gap and activity rates for these countries.

To summarize, we will test the following hypotheses:

1. Are women less likely than men to start a business?
2. Do personal and demographic characteristics reduce the predicted probability of female entrepreneurship?

²This paper addresses single men and single women only, the implication is that the social status should be included in a regression relating to individual attributes to fear of failure. Daoud et al. (2015) found the social status dummy to be insignificant in fear of failure equation.

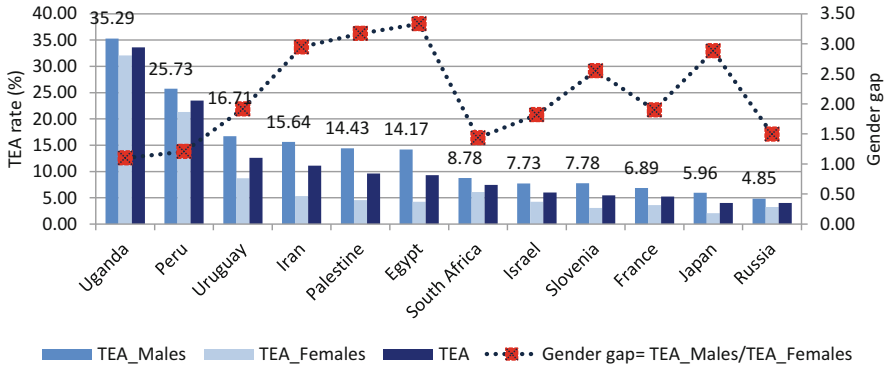


Fig. 1 TEA rates (average 2008–2010 and 2012). Countries are ordered according to the total entrepreneurship activity (TEA) rates, decreasing from left to right

3. Do perceptual variables: self-efficacy, seeing good business opportunities, knowing other entrepreneurs, and fear of failure explain any additional substantial portion of the gender gap?

3 Data, Model and Estimation Methodology

We utilize data on 12 member countries of the Global Entrepreneurship Monitor consortium which uses stratified random sampling method; the adult population survey questionnaire design has four blocks of questions representing the entrepreneurial process³ in a sequential multi-set approach. The countries were chosen from the three phases of economic development; factor driven, efficiency driven, and innovation driven economies; four countries from each level. The GEM surveys collect the data for these countries for 4 years included in this study.⁴ Based on the level of economic development, Palestine, Egypt, Iran and Uganda are classified as factor driven economies, while Russia, Uruguay, South Africa and Peru are classified as efficiency-driven economies, Japan, France, Slovenia and Israel are classified as innovation driven economies. Among each level of economic development, there is a diversification in the country rates of entrepreneurship activity. Our choice of countries reflects the variation in activity rates across the three phases. In this regard, the GEM results suggest that countries have unique sets of economic and social conditions affecting entrepreneurial activity. Variable definitions and measurements are provided in Table 1.

³For a discussion of the data collection design, implications and reliability see Bosma et al. (2012) and Reynolds et al. (2005).

⁴Except 2008 data of Palestine and Uganda, and 2009 data of Egypt.

Table 1 Variables used in the estimation of TEA

Name	Label	Description	Values	Expected sign of coefficient
TEA (Dependent variable)	Probability of being an early-stage entrepreneur	Actively involved in starting a business or owner/manager of a business which is active and younger than 3.5 years	[0,1]	–
Gender	Gender	The gender of the questioned person	[Male = 1, Female = 2]	Negative
Age	Age	The age of the questioned person	Years	Quadratic
Education	Level of education	The level of education of the questioned person	None/some secondary/Secondary Post-Secondary/Graduate	Negative ^a
Income	Household income	The questioned person was asked about the range that best describes the total annual income of all the members of his/her household including his/her income	In the lower 33%/middle 33%/upper 33%	Positive
Work status	Work status	The work status of the questioned person	Not working/full time or part time/retired or student	Positive
Skills	Skill perception (self-efficacy)	The questioned person answered if he/she considers that he/she has the knowledge, skill and experience required to start a new business	[No = 0, Yes = 1]	Positive
Know	Knows other entrepreneurs	The questioned person answered if he/she knows personally someone who started a business in the past 2 years	[No = 0, Yes = 1]	Positive
Opportunity	Opportunity driven	The questioned person answered if he/she sees good business opportunities in the area he/she lives in the next 6 months	[No = 0, Yes = 1]	Positive
Fear of failure	Fear of failure	The questioned person answered whether he/she considers that fear of failure prevents him/her from starting a business	[No = 0, Yes = 1]	Negative
Close	Closed a business	The questioned person answered if he/she sold, closed, shut down,	[No = 0, Yes = 1]	Positive

(continued)

Table 1 (continued)

Name	Label	Description	Values	Expected sign of coefficient
		discontinued or quit a business in the last 12 months		
Busang	Business angel	The questioned person answered if he/she in the past 3 years, personally provided funds for a new business started by someone else, excluding any purchases of stocks or mutual funds	[No = 0, Yes = 1]	Positive

^aBased on Chapter “Introduction”

In order to determine the factors that affect the involvement in entrepreneurial activity rates the study uses the Conditional (recursive) Mixed Process estimation (CMP) which was developed by Roodman (2009). In order to correct the endogeneity problem we utilize the instrumental variable model as follows:

$$Y_i = \alpha_0 + \alpha_1 X_i + \alpha_2 S_i + \epsilon_i \tag{1}$$

$$S_i = \beta_0 + \beta_1 X_i + \beta_2 IV_i + \mu_i \tag{2}$$

where Y_i stands for the TEA, X_i represents the vector of variables that are expected to affect TEA, and S_i stands for the skill perception variable for $i = 1, 2, 3, \dots, n$ individuals.⁵ The CMP fits a large family of estimators, including the bivariate probit. The CMP estimates Eqs. (1) and (2) simultaneously, and the errors are assumed to be jointly normally distributed. Indeed, the CMP is proper for models in which there is simultaneity, where the estimated coefficients are consistent and efficient (Roodman 2009). To set up the regression we have to find at least one variable that affects S without having a direct effect on Y. The instrument we use to control for the effect of endogeneity is such that the correlation with the probit error is minimal and maximal with the potentially endogenous variables.⁶ This is found to be the case with “Equalinc” which records the lowest (nearly zero) correlation with the residuals compared to the other variables whilst a higher correlation with skills.⁷ Equalinc stands for the individual’s answer on the question “whether or not most

⁵For more information about the variables and their expected sign see Table 1.

⁶The weak instrument test of Finlay and Magnusson (2009) could not be applied here, since it needs continuous dependent variable, while in this study the dependent variable (TEA) is binary.

⁷The correlation coefficient between Equalinc and the residuals is 0.02 compared to around 0.04 between Equalinc and skills, marginally higher.

people prefer that everyone had a similar standard of living in the country where she/he lives" (yes = 1, no = 0).⁸

Equations (1) and (2) are jointly estimated, the estimation is achieved via limited information maximum likelihood. Using the estimate of $\text{athanh}\rho$,⁹ which is related to the correlation between the error terms (ϵ , μ) of Eqs. (1) and (2) to test the hypothesis that this correlation is zero. If the null is rejected, this implies that there must be unobservable external factors that influence both Y and S . While if the null cannot be rejected this implies that there is no need for a CMP estimation and the estimates of standard probit model will be more efficient (Roodman 2009).

4 Results and Discussion

4.1 Gender Gap in Entrepreneurship

To investigate the factors that affect an individual's decision to start a business (TEA) and to analyze how the gender gap is affected by the control of these covariates, the TEA equation is estimated by probit through four steps¹⁰; in the first model, gender is the only explanatory variable, the coefficient of gender gives the change in average predicted probability of being TEA entrepreneur, if negative would imply that females have a lower predicted probability of being entrepreneurs. Model 2 adds (demographic and personal attributes) age, age squared, level of education and work status. Model 3 adds the perceptual variables. Finally, model 4 adds the variables related to experience gained from closing previous businesses (close) and from being an informal investor though providing funds to businesses started by friends or relatives (Busang).

Table 2 provides the results; model 1 show that the gender coefficient is -0.37 and is significant. This implies that women are less likely than men to start a business.¹¹ The demographic characteristics explain a high proportion of the gender

⁸The two conditions: a variable that is not correlated with the residuals of the output but to be correlated with self-efficacy are found more applicable to Equalinc compared to the other variables that were correlated with the error term. However, using the other endogenous variables in the CMP model instead of Skills (as endogenous for TEA) yields nearly the same results without eliminating the gender gap.

⁹The parameter $\text{athanh}\rho$ represents an unbounded transformation of the usual rho-statistic. It is the arc-hyperbolic tangent of rho, and has the property of being unbounded compared to rho (rho is bounded in value between 1 and -1). Hence, it is suitable to be used as a base for testing the null hypothesis of no correlation between the error terms (Roodman 2009).

¹⁰We follow the same steps of Koellinger et al. (2013) to highlight any differences that may arise and to show later that unlike their finding, the gender gap in activity rates still remains negative and statistically significant after controlling for the individuals' variables and correcting for the endogeneity problem. The CMP model yields more efficient results compared with bivariate probit model.

¹¹Given that gender dummy is coded as (1: male, 2: female).

Table 2 Probit estimates of the TEA equation

Dependent variable: TEA	Model 1	Model 2	Model 3	Model 4
Female	-0.37***	-0.18***	-0.07***	-0.06***
Age		0.01**	0.01**	0.01**
Age squared		0***	0***	0***
Income		0.04**	0.05**	0.05**
Education		0.14***	0.09***	0.08***
Some secondary		-0.08***	-0.09***	-0.09***
Secondary		0.02	-0.04	-0.05
Post secondary		0.02	-0.08**	-0.08**
Graduate		0.04	-0.1**	-0.1**
Work status		0.85***	0.9***	0.91***
Full time or Part time				
Retired or student		-0.09***	-0.03	-0.01
Knows other entrepreneurs			0.36***	0.33***
Fear of failure			-0.17***	-0.17***
Skill perceptions			0.59***	0.58***
Opportunity driven			0.25***	0.24***
Business angle				0.23***
Closed a business				0.23***
Constant	-0.79***	-2.32***	-2.69***	-2.66***
Model diagnostics				
Pseudo R squared	0.11	0.19	0.26	0.26
Loglikelihood	-28,769.99	-21,428.94	-15,858.89	-15,623.93
Prob > chi2	0	0	0	0
N	95,298	73,878	51,219	50,740

Reference categories: Gender: Male, Income: lowest 33%, education: none, work status: not working

Country and year dummies are included in the estimations in order to include fixed effects and for controlling differences across countries in any observable or unobservable predictors

Survey weights for 18-64 labor force are used

***Significance at >99% confidence; **Significance at >95% confidence; *Significance at >90% confidence

gap, while controlling for personal and demographic characteristics reduces the predicted probability by as much as 50% (the coefficient has decreased to -0.18). As for the perceptual variables: self-efficacy, seeing good business opportunities, knowing other entrepreneurs, and fear of failure explain an additional substantial portion of the gender differences; when they are included in model (3), the gender coefficient decreases from (-0.18) to (-0.07) . Finally, the experience gained from closing a previous business and informal investment shrinks the gender gap from (-0.07) to (-0.06) .¹² The contribution to business closure while being a business angel in the past is not very large, no matter how, significant. It may consequently, after the control of the above variables, it is still found that being female reduces the likelihood of starting a business. This means that there are other “unobserved factors” which are responsible for gender differences in starting businesses. Unlike Koellinger et al. (2013) the gender gap did not disappear after the control for the endogeneity between the decision to start a business and the perceptual variables. The gender gap becomes statistically insignificant when they use the recursive simultaneous-equation bivariate probit model and control for the endogeneity problem. Koellinger et al. (2013) used self-efficacy as an endogenous variable for the decision to start a business because it is the one that results in the disappearance of the gender gap; indeed, this is the reason why they use self-efficacy as endogenous rather than other perceptual variables. This result may be due to the fact that they use nascent entrepreneurship rather than TEA. As a robustness check, we carry out the same procedure on nascent entrepreneurship below.

This study follows the procedure of Koellinger et al. (2013) in testing the potential endogeneity of skill perception, whereas, in controlling the endogeneity, this study applies different estimation technique which is the Conditional Mixed Process (CMP) which suggests a more consistent and efficient estimators (Roodman 2009). In addition, the dependent variable in this study is TEA which embraces both nascent and new entrepreneurs rather than nascent entrepreneurs which is a better measure because of its wider coverage.

The CMP estimates Eqs. (1) and (2) simultaneously. Based on Koellinger et al. (2013), self-efficacy (skills), knowing other entrepreneurs (know), or seeing good business opportunity (Opportunity) and fear of failure may suffer from endogeneity. To test whether these variables are endogenous with TEA or not, the TEA equation is estimated by probit. The residuals resulting from this regression correlate with the following: skills, opportunity, fear of failure and know. The results provide evidence for the existence of simultaneity (endogeneity) between each of them and the likelihood of being involved in entrepreneurship. The skill perception records the highest correlation with the residuals of the TEA equation; hence, it is used as

¹²The model selection criteria (AIC and BIC) as well as log likelihood and Pseudo R^2 confirm *improvement of model* fit when moving across models 1–4.

endogenous for TEA.¹³ Self-efficacy is higher among individuals who recognize good business opportunities and who know other entrepreneurs, but it is lower among individuals who have fear of failure, see Figs. 2, 3, and 4.

Moreover, the figures indicate that women who either see good business opportunities or know other entrepreneurs or have less fear of failure have less self-efficacy than men. This might be the case because men and women have different skills and circumstances, or because they are different in perceiving their own skills or entrepreneurial opportunities (Koellinger et al. 2013). Croson and Gneezy (2009) suggest that men are more likely to consider risky situation as a challenge for participation, while women interpret risky situations as threats that must be avoided. The significant coefficients of the perceptual variables in the probit regression and the coefficients of the perceptual variables illustrated in Table 2 and Figs. 2, 3, and 4 assert the evidence for endogeneity between skills and TEA; both are higher among individuals of low fear of failure, have the knowledge of other entrepreneurs, and see good business opportunities. The existence of endogeneity problem biases the estimated coefficients of the probit model. Endogeneity may exist because “individuals reveal their preference for entrepreneurship at the moment of the survey which deviates from the desired situation in which preferences are measured at the moment of engaging into entrepreneurship” (Verheul et al. 2011).

The results of the CMP estimation show that even after the control of the endogeneity the gender gap is still significant. The coefficient of gender is almost the same compared to its value before controlling for endogeneity (-0.06).¹⁴ This implies that a significant portion of the gender differences in the entrepreneurial decision could not be explained by the factors included in the model together with the variation in self-efficacy. This result is not in line with Koellinger et al. (2013), but, it is somehow consistent with the finding of Daoud et al. (2015). Our study uses other explanatory variables in predicting the probability of starting new businesses such as education, work status and previous experience in informal investment which make the gender gap narrower compared to that in Daoud et al. (2015); however, others, pointed out that the entrepreneurial behaviors of women and men are almost affected by the same variables across countries. The observed gender differences are due to the intensity by which each of these variables affects individuals which varies across countries based on the level of development (Minniti and Naudé 2010).

¹³Self-efficacy records the highest correlation with the residuals (0.55) followed by know (0.44), opportunity (0.41), and fear of failure (-0.21).

¹⁴The gender gap slightly decreases, it is estimated to -0.057 in the CMP model compared to (-0.064) in the probit model and approximated to (-0.06).

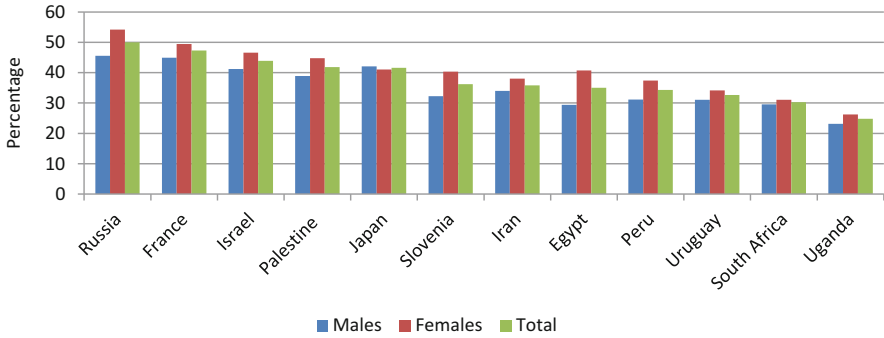


Fig. 2 Fear of failure rates across countries for the period (averages 2008–2010 and 2012). Countries are ordered according to fear of failure rates (total), decreasing from left to right

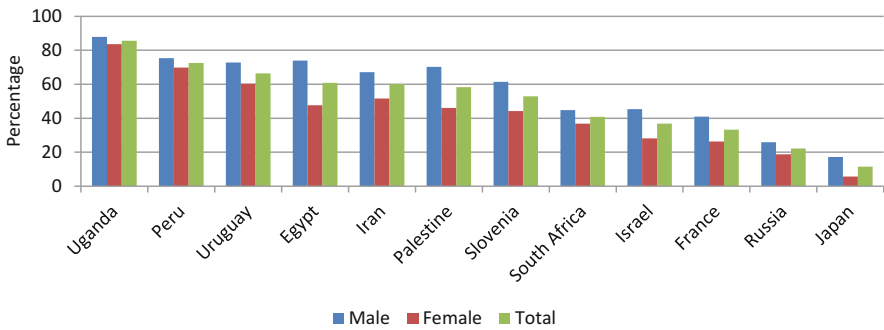


Fig. 3 Skill perception rates across countries for the period (averages 2008–2010 and 2012). Countries are ordered according to skills perception rates (total), decreasing from left to right

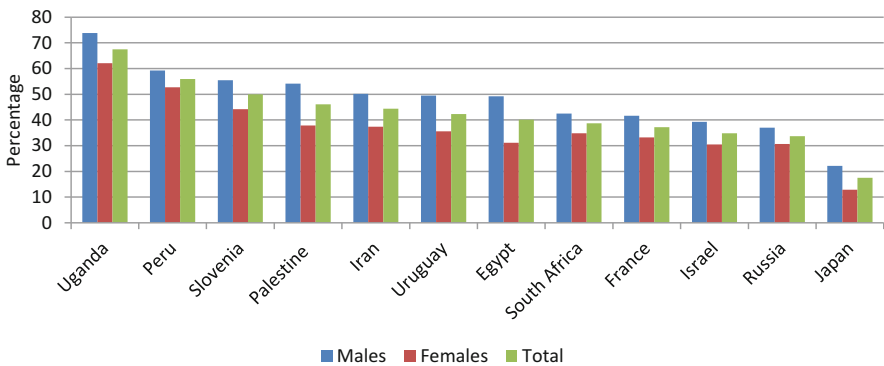


Fig. 4 Knowing other entrepreneurs' rates across countries for the period (averages 2008–2010 and 2012). Countries are ordered according to knowing someone who started a business rates (total), decreasing from left to right

4.2 *Unobserved Factors in Gender Gap*

A substantial part of the gender gap has been eliminated by the control for the demographic and the perceptual variables. However, there is significant evidence that women are less likely to start a business compared to men. Gender differences in entrepreneurship are significant in each of the 12 countries included in this study. The highest gender gap is observed in Egypt followed by Palestine, Iran and Japan respectively. In what follows, we provide a review of the main obstacles that women face in business start-up.

In Egypt, women are faced with less social and educational opportunities, and less access to resources due to gender discrimination and gender stereotyping; they suffer from lack of financial support. They face social restrictions related to culture and women's role in society, especially for married women and those who are responsible for child care Hattab (2012).

In the Palestinian context, social problems and the traditional role of women associated with the composition of the Palestinian society is one of the most important problems facing the Palestinian business women, Sadeq et al. (2011). Moreover, Daoud et al. (2015) point to local traditions and expectations towards females' role in the household, difficulty of doing business and tax systems are some of the factors that business women identify as impediments to their business endeavors. Moreover, Gaza women experienced severe repercussions resulting from Israeli wars (2008, 2012, and 2014) against the Strip. These wars damaged buildings, factories, farmland, and public infrastructure (Althalathini 2015; IMF 2014). The severe blockade of the Strip made it even much more difficult for anyone to interact with the outside world. What distinguishes the Palestinian women (especially in Gaza) from others is that they are living in a male-dominated society. Gaza women do not have the control over their own income. They cover household and education expenses, but nevertheless, this does not increase their power and decision making ability in traditionally male-dominated society (Althalathini 2015).

In Iran, women are faced with gender discrimination and "visible and invisible structural" restrictions in terms of social, cultural, bureaucratic, and economic aspects, they suffer from lack of financial support and gender stereotyping and discrimination. Women in Iran are less interested in launching a business and less confident in their capabilities; the lack of confidence is attributed to society's wrong perception of women where women are considered as "an inferior sex" compared to men. The common view is that the primary role for women in society is as homemakers, mothers and wives rather than successful entrepreneurs. This, therefore, has a negative impact on women's participation in the economy as entrepreneurs. In addition, married women have less freedom to participate in economic and social activities rather than single ones, Sarfaraz and Faghieh (2011) and Halimi et al. (2011).

Finally, in Japan, the biggest problem women face is the lack of skills and knowledge in business management. In addition, the lack of financial support, support systems, fundamental household support including childcare, access to

information, and networking are considered perpetual challenges. See the Japanese Ministry of Economy, Trade, and Industry (2010) and Debroux (2004).

The preceding discussion has important policy implications for the MENA Region; Although the sample from MENA is restricted to Palestine and Egypt from the Arab countries, the findings indicate higher gender gap, higher fear of failure, lower skill perception, and medium activity rates compared to the rest of the sample. As a result, media campaigns and training that improve skill perception are steps in the right direction.

4.3 *CMP Regression Diagnostics*

The test of significance of the correlation (athanhrho) between the errors (ϵ , μ) is found to be significant implying that the CMP regression is justified and there is evidence for the existence of unobserved factors that have a joint effect on self-efficacy and starting a new business. Furthermore, the negative sign of athanhrho signifies a negative correlation between the error terms of TEA and skills equations which means that the effect of the unobservable factors on skills and TEA is in an opposite direction.

Such unobserved factors have effects similar to the education effect (which is observed and included) on starting a business, education might increase self-efficacy, but on the other hand, education could sometimes reduce the likelihood of starting a business rather than increasing it. Educated individuals could find more job opportunities than less educated individuals, hence, they might prefer to be employed rather than take the risk in starting a new business. The human capital theory postulates that private returns to education vary from one country to another, but it is particularly low in Palestine (Daoud 2005). Ability is often cited as one of the factors that lead to heterogeneity bias in estimating returns to education; it could be argued that starting a new business may be influenced by one's ability which may be a trait that one gets from being in a family of entrepreneurs. The remaining significant gender gap in activity rates could very well be the result of such variables. Since on the one hand country-fixed effects are already included in the regression, and on the other hand, family background variables may be consistent with the negative correlation between ϵ and μ . Education is included as an explanatory variable for both equations, but other unobserved variables might be training and job experience, family background variables, and ability. However, such individuals might decide to start their own business and use the experience they gained, while others might not take the risk and look forward for a higher position in the institutions they work for. Another unobserved factor is job satisfaction; the more satisfied a person is in his/her work the higher the self-efficacy and the lower the probability for him/her to start his/her own business. Indeed, it is worth testing such multifaceted effect of job experience and job satisfaction since such relations have not been tested yet.

Table 3 CMP regression results with TEA as dependent variable

		Tea equation		Skill equation
		β	Marginal effect	β
Female		-0.06***	-0.01	-0.24***
Age		0.01*	0	0.02***
Age squared		0.00**	0	0.00***
Income	Middle 33% income	0.05*	0.01	0.06**
	Upper 33% income	0.08***	0.01	0.02
Education	Some secondary	-0.09***	-0.01	0.11***
	Secondary	-0.05	-0.01	0.22***
	Post secondary	-0.08**	-0.01	0.29***
	Graduate	-0.11**	-0.02	0.42***
Work status	Full time or part time	0.91***	0.12	0.13***
	Retired or student	-0.01	0	-0.14***
Knows other entrepreneurs		0.33***	0.05	0.41***
Fear of failure		-0.16***	-0.02	-0.29***
Skill perception		0.65***	0.1	-
Opportunity driven		0.23***	0.03	0.40***
Business angle		0.22***	0.04	0.16***
Closed a business		0.22***	0.04	0.48***
Equalinc		-	-	0.02
Constant		-2.48***	-	0.06
Atanrho_12		-0.05***		
Rho_12		-0.05		
Pseudo likelihood		-37,360.764		
Prob > chi2		0		
N		50,740		

See notes to Table 2

Table 3 presents the regression results based on CMP regression applied to the pooled data set of 12 countries for the years 2008–2010 and 2012. After controlling the influence of other variables and the endogeneity problem, the gender gap shrunk sharply; however, being female reduces the likelihood of starting a business. Based on the marginal effect, being a female reduces the likelihood of starting a business by 1% on average.

Individual's age is important in predicting the probability of starting a business; the results show that age affects the involvement in entrepreneurship activities in a quadratic relationship; the entrepreneurship activities increase with age, reach a peak then decrease. The income effect shows that the upper 33rd percentile and the middle 33rd percentile are more likely to start a business compared to the lowest 33% income individuals; this finding is in line with Daoud et al. (2015).

With respect to education, the results indicate that more educated individuals are less likely to be self-employed (compared to not educated base group). Individuals who have either some secondary, post-secondary or graduate schooling are less likely to start a business compared to non-educated individuals. This result is in line with Blanchflower (2004) study which reports that education is negatively correlated with self-employment¹⁵ in Europe, and suggests that less educated individuals may choose self-employment driven by lack of other economic alternatives (Blanchflower 2004). This is consistent with the findings that most of the entrepreneurs are driven by needs and necessity, are less educated and use relatively old production techniques as well as most concentrated in the consumer oriented sector. On the other hand, skilled individuals who have achieved some post-compulsory education might prefer to be self-employed and choose to practice vocational rather than professional skills (Dawson et al. 2009).

The results indicate that individuals who have a full or part time job are more likely to become entrepreneurs; the marginal effect reveals that full or part time employees are 12% more likely to start a business than individuals who are not working. This is expected because working might provide individuals with experience and skills, having access to the resources, social capital and ideas needed in establishing businesses (Minniti et al. 2005).

In line with the literature, the perceptual variables (Skills, Opportunity, Know and Fear of failure) have significant effect in influencing the propensity of individuals to become entrepreneurs. Individuals who perceive they have the knowledge and sufficient skills to start a business are 10% more likely to start a business when compared to individuals who report less self-efficacy. Personal networks and knowing other entrepreneurs are important too; the probability of starting a new business for individuals who know other entrepreneurs is higher by 5% than the individuals who do not know other entrepreneurs who started a business in the past year. Risk averse individuals who have fear of failure are 2% less likely to start a business than risk tolerant (do not fear failure). Finally, perceiving good business opportunities increases the probability for individual to start a business by 3%. Evidently, skill perception and having a job are the most influential in enhancing the probability of business startups. The education effect on startups is also the strongest indirectly through skill perception.

The experience in informal investment increases the probability of starting a business by 3%. Similarly, the experience gained from closing (shutting down) a business increases the likelihood to become an entrepreneur by 4%. The positive relation between closing business and starting a new business implies that individuals in this study are considering business discontinuation as a learning process rather than a barrier to starting new businesses (challenge effect).

¹⁵An entrepreneur is not just self-employed, the term is best described the cost of self-employment which is the wage and the cost of the entrepreneur who does not gain any profit. However, it is often used to mean business startup.

Turning to the skills perception equation, the gender differences are highly significant; women are significantly less confident in their entrepreneurial skills than men. The impact of age on skills is similar to its effect on probability starting business (inverted U-shaped relation). As to education, skill perception increases with the increase of the level of education (not educated is the base group). In addition, working in a full of part time job increases the probability of having self-efficacy. The opposite is true for the retired or student group (compared to unemployed base group). Finally, the instrumental variable used in the Skills equation (Equalinc) becomes insignificant after the control for country fixed effects, another specification excluding the fixed effects resulted in lower model selection criteria (AIC and BIC, the Log likelihood and Pseudo R²).

Indeed, the country fixed effects are found to play an important role in influencing the decision of individuals to start a business (Table 4). Three observations can be made: The first is that there are three countries which consistently (in all specifications) record lower average propensity to start a business compared to Palestine, these are France and Slovenia (innovation driven), and Russia (efficiency driven). On the other hand, two efficiency driven countries (Peru and Uruguay) and Iran and Uganda which are factor driven are reported to have higher average propensity to start a business relative to Palestine. Figure 1 shows Egypt to have a lower TEA rate, Table 4 reveals that the rates are not statistically significant from one another. Finally, Japan and Israel have significantly lower rates in models 1 and 2 (Table 4), however, after controlling the perceptual variables, country- fixed effects have become statistically insignificant. Thus country differences are not (in most cases) explicable by personal traits, perceptual variables, and other socio-economic covariates, but occasionally, inclusion of such variables renders such differences insignificant as is the case with Israel and Japan.

Table 4 Country fixed effects of the probit and CMP models

Country	Model 1	Model 2	Model 3	Model 4	CMP model	
	Dep. TEA	Dep. TEA	Dep. TEA	Dep. TEA	Dep. TEA	Dep. skills
Egypt	-0.04	-0.02	-0.01	-0.02	-0.02	0.08**
South Africa	-0.14***	-0.03	0.14***	0.14***	0.15***	-0.36***
France	-0.34***	-0.41***	-0.31***	-0.30***	-0.28***	-0.55***
Peru	0.62***	0.63***	0.60***	0.59***	0.58***	0.20***
Japan	-0.48***	-0.54***	0.03	0.04	0.07	-1.24***
Iran	0.08***	0.24***	0.37***	0.38***	0.38***	-0.01
Uganda	1.17***	1.26***	1.01***	0.92***	0.91***	0.47***
Slovenia	-0.30***	-0.38***	-0.28***	-0.26***	-0.26***	-0.09**
Uruguay	0.18***	0.12***	0.15***	0.14***	0.14***	0.10**
Russia	-0.46***	-0.62***	-0.24***	-0.22***	-0.20***	-0.94***
Israel	-0.26***	-0.33***	-0.06	-0.07	-0.05	-0.61***

Reference category is Palestine

*** $P < 0.01$; ** $P < 0.05$; * $P < 0.1$

Interestingly, in model 1 (where gender is the only explanatory variable) individuals in South Africa are found less entrepreneurially active compared to individuals in Palestine. However, controlling for the demographic factors shrinks the gap and makes individuals in the two countries equally likely in the involvement in entrepreneurship activities. For example, the proportion of none educated entrepreneurs in Palestine is higher than in South Africa. Further, the distribution of the South African entrepreneurs by income is like a U-shaped relation while the proportion of entrepreneurs decreases with the increase of income in Palestine. Since The coefficient of South African fixed effect becomes significant and positive after model 2 indicates that the direct effect of self-efficacy on TEA, as well as the indirect positive effect on TEA of skills and other perceptual variables improve the predicted probability of South Africa relative to Palestine. A similar story can be said about Israel and Japan; the addition of the perceptual variables to the probit equation reduces the seemingly lower activity rates in these two countries to mere random differences. In other words, seeing good opportunities, fear of failure, knowing other entrepreneurs, skill perception, and closing a business account for country differences in activity rates. The country dummies coefficients in self-efficacy equation, confirm significant differences between Palestine and other countries regarding skills perceptions (except in Iran). However, controlling for endogeneity does not make big differences in the country fixed effects compared to the previous model (model 4).

4.4 Robustness

To check the robustness of our results, we first run probit regressions on nascent entrepreneurship as was reported in Table 2, the new results are reported in Table 5. The same information can be deduced from the gender gap and expanding a set of explanatory variables shrinks the gap, though, to a lesser degree with nascent entrepreneurs indicating that the gap is larger in favor of males in nascent entrepreneurship. But in all models it remains significantly negative. The income effect is an important departure from the results in Table 2. While it is found to be significant in the case of TEA, it is not true with of nascent entrepreneurship. The opposite is true for education, It is more important in the case of nascent entrepreneurs than in TEA. The remaining variables are similar in sign and magnitude. Thus the results are robust to the choice of dependent variable.

We then run the same regression reported in Table 3 using bivariate probit model; again it can be said without loss of generality that the same findings are confirmed (aside from the gain in efficiency as a result of the CMP model) (Table 6). Table 7 also reports CMP of results on nascent entrepreneurship, the gap is the same as in Table 5, and it is also significant and negative. The insignificance of atanhrho in Table 7 reveals that the use of CMP is not justified on nascent entrepreneurship. Finally, the country fixed- effects on nascent entrepreneurs is similar for 10 of the

Table 5 Probit estimates with nascent as dependent variable

Variable		Model 1	Model 2	Model 3	Model 4
		β	β	β	β
Female		-0.31***	-0.20***	-0.10***	-0.09***
Age			0.01**	0.01**	0.01**
Age squared			0.00***	-0.00***	0.00***
Income	Middle 33% income		0.03	0.04	0.03
	Upper 33% income		0.08***	0.03	0.02
Education	Some secondary		-0.02	-0.02	-0.01
	Secondary		0.11***	0.07**	0.08**
	Post secondary		0.19***	0.12***	0.13***
	Graduate		0.23***	0.10*	0.11**
Work status	Full time or part time		0.42***	0.41***	0.41***
	Retired or student		-0.15***	-0.11***	-0.09**
Knows other entrepreneurs				0.35***	0.33***
Fear of failure				-0.12***	-0.11***
Skill perceptions				0.56***	0.55***
Opp. driven				0.22***	0.21***
Business angle					0.27***
Closed a business					0.20***
Constant		-1.03***	-1.70***	-2.38***	-2.38***
Model diagnostics					
Pseudo R squared		0.0794	0.1127	0.1721	0.1779
Loglikelihood		-19,596.3	-15,308.2	-11,616.7	-11,432.3
Prob > chi2		0	0	0	0
N		95,298	73,878	51,219	50,740

See notes to Table 2

12 countries; only Egypt and Israel become significantly lower than Palestine for all specifications illustrated in Table 8.

Finally, we ran a few more regressions involving the use of CMP and bivariate probit for estimation on both TEA and nascent entrepreneurship, the results (not reported) indicate the superiority of closed a business in the past as an instrument for skill perception in terms of pseudo log likelihood; however, this variable has higher correlation with the errors from the TEA equation than with skill perception. Having said that, the gender gap is still negative and significant at the 5% level. Comparing bivariate probit with CMP using business discontinuation, we find better fit with the CMP model. The same can be said about using nascent as a dependent variable, business discontinuation for the CMP is best though, the gap does not totally disappear and remains significant (lower levels in the case of bivariate probit).

Table 6 Bivariate probit regression results

Variable		TEA	Skill	Nascent	Skill
Female		-0.05**	-0.25***	-0.06**	-0.24***
Age		0.01	0.02***	0.01*	0.02***
Age squared		0.00*	0.00***	0.00**	0.00***
Income	Middle 33% income	0.04	0.06***	0.04	0.06***
	Upper 33% income	0.08***	0.02	0.03	0.02
Education	Some secondary	-0.04	0.11***	-0.01	0.11***
	Secondary	-0.01	0.22***	0.06	0.22***
	Post secondary	-0.05	0.29***	0.10**	0.29***
	Graduate	-0.08	0.42***	0.08	0.42***
Work status	Full time or part time	0.82***	0.13***	0.38***	0.13***
	Retired or student	-0.03	-0.14***	-0.08	-0.14***
Knows other entrepreneurs		0.25***	0.41***	0.25***	0.41***
Fear of failure		-0.12***	-0.29***	-0.08***	-0.29***
Skill perception		0.99***	-	0.90***	-
Opportunity driven		0.15***	0.40***	0.14***	0.40***
Business angle		0.15***	0.17***	0.14***	0.16***
Closed a business		0.08***	0.41***	0.13***	0.41***
Equalinc		-	0.02	-	0.02
Constant		-2.29***	0.05	-2.30***	0.05
Model diagnostics					
Atanhrho_12		-0.29***		-0.25***	
Rho_12		-0.28		-0.24	
Log pseudo likelihood		-34,980.2		-31,707.2	
Prob > chi2		0.000		0.000	
N		39,223		39,223	

See notes to Table 2

5 Conclusion

This paper aims at analyzing the factors that affect an individual’s decision to engage in new entrepreneurial activity using the GEM data for 12 countries from 3 different levels of economic development in 2008–2010, and 2012 periods. Noticeably, the entrepreneurship activity rates are higher among the developing countries than the developed countries included in this study. Nevertheless, the rate of the entrepreneurial activities among countries included in this study does not reflect their level of development. The contribution of this paper is twofold: the first is that it confirms the expectations that “the so called unobserved factors” may be attributable to country level covariates. The second is actually a consequence of the first, it points

Table 7 CMP regression results with nascent as dependent variable

Variable		Nascent	Skill
Female		-0.09***	-0.24***
Age		0.01*	0.02***
Age squared		0.00**	0.00***
Income	Middle 33% income	0.03	0.06***
	Upper 33% income	0.02	0.02
Education	Some secondary	-0.02	0.11***
	Secondary	0.08*	0.22***
	Post secondary	0.13***	0.29***
	Graduate	0.11*	0.42***
Work status	Full time or Part time	0.41***	0.13***
	Retired or student	-0.09**	-0.14***
Knows other entrepreneurs		0.33***	0.41***
Fear of failure		-0.11***	-0.29***
Skill perception		0.58***	-
Opportunity driven		0.21***	0.40***
Business angle		0.20***	0.16***
Closed a business		0.27***	0.41***
Equalinc		-	0.02
Constant		-2.40***	0.05
Model diagnostics			
Atanrho_12		-0.02	
Rho_12		-0.02	
Log pseudo likelihood		-33,171.29	
Prob > chi2		0.000	
N		50,740	

See notes to Table 2

Table 8 Country fixed effects with nascent as dependent variable

Country	Model 1	Model 2	Model 3	Model 4
Egypt	-0.17***	-0.17***	-0.16***	-0.16***
South Africa	-0.12***	-0.02	0.10**	0.09**
France	-0.24***	-0.29***	-0.18***	-0.16***
Peru	0.69***	0.70***	0.66***	0.65***
Japan	-0.49***	-0.53***	0	0.01
Iran	-0.02	0.04	0.13***	0.13***
Uganda	0.46***	0.51***	0.24***	0.14***
Slovenia	-0.30***	-0.35***	-0.26***	-0.24***
Uruguay	0.21***	0.20***	0.24***	0.24***
Russia	-0.45***	-0.54***	-0.18***	-0.16**
Israel	-0.27***	-0.37***	-0.13**	-0.14***

to the use of multilevel analysis to see if the gender gap totally disappears after controlling the country level variables.

The determinants of entrepreneurship maintained by the CMP regression suggest that women are less likely than men to start a business. In addition, age, household income, education, work status, perceptual variables (self-efficacy, knowing other entrepreneurs, seeing business opportunity and fear of failure), closing a business and previous experience in informal investment are significant factors in predicting the probability of starting business. Moreover, based on the average marginal effect, self-employment (full or part time employment), self-efficacy and knowing other entrepreneurs are the major factors that affect an individual's decision to being involved in entrepreneurial activity. In addition, this study notices a signal for unobserved factors that affect both self-efficacy and the likelihood of starting a business in a negative direction.

The gender gap in entrepreneurship does not disappear completely after the control of all covariates and correcting for endogeneity. This implies that the remaining portion (although small) is due to "unobserved factors". According to the results the demographic factors (e.g. age, education, income and work status) and the perceptual factors (self-efficacy, knowing other entrepreneurs, seeing good business opportunities and fear of failure) in addition to other regressors included in this study account for a substantial portion of the gap. However, their effects are different across countries based on the level of development. This provides signs for governments and policy makers to play a key role in reducing the gap by education, through providing alternative or supplementary education for young individuals (particularly women) who were permanently excluded from schools. Such alternatives should focus on technical education and training to boost the entrepreneurial skills and abilities among less educated individuals.¹⁶ In addition, it is important for governments to provide credit facilities and financial support to help women entrepreneurs to start up their businesses. Policy makers could work to alter some of the unobserved factors that are expected to be responsible for the gender gap, such as working towards changing the cultural norms related to gender stereotypes and fight gender discrimination which prevents women from perceiving equal opportunities through cultural, social, bureaucratic and economic obstacles. Increasing female employment also increases entrepreneurial propensity significantly directly and indirectly through its effect on self-efficacy.

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¹⁶Given that nearly 37% of the entrepreneurs in this study are not educated or have some secondary education.

References

- Althalthini D (2015) Women entrepreneurs in Gaza strip: obstacles and opportunities. *Int J Econ Commer Manag* 3(4):1–16
- Ardagna S, Lusardi A (2008) Explaining international differences in entrepreneurship: the role of individual characteristics and regulatory constraints. NBER working paper series no. 14012
- Arenius P, Minniti M (2005) Perceptual variables and nascent entrepreneurship. *Small Bus Econ* 24(3):233–247
- Blanchflower D (2004) Self-employment: more may not be better. NBER working paper no. 10286
- Bönte W, Piegeler M (2013) Gender gap in latent and nascent entrepreneurship: driven by competitiveness. *Small Bus Econ* 41(4):961–987
- Bosma NS, Coduras A, Litovsky Y, Seaman J (2012) GEM manual: a report on the design, data and quality control of the global entrepreneurship monitor. GEM version 2012-9
- Crosen R, Gneezy U (2009) Gender differences in preferences. *J Econ Lit* 47(2):1–27
- Cuervo Á, Ribeiro D, Roig S (2007) *Entrepreneurship: concepts, theory and perspective*. Springer, New York, pp 23–71
- Daoud Y (2005) Gender gap in returns to schooling in Palestine. *Econ Educ Rev* 24(6):633–649
- Daoud Y, Sarsour S, Shanti R, Kamal S (2015) Risk tolerance, gender, and entrepreneurship: the Palestinian case. *Pep working paper no.* 2015-11
- Davidsson P, Honig B (2003) The role of social and human capital among nascent entrepreneurs. *J Bus Ventur* 18(3):301–331
- Dawson C, Henley A, Latreille P (2009) Why do individuals choose self-employment? IZA discussion paper, no. 3974
- Debroux P (2004) Female entrepreneurship in Japan. *經營學論集* 74:144–145
- Eckhardt JT, Shane SA (2003) Opportunities and entrepreneurship. *J Manag* 29:333–349
- Estrin S, Mickiewicz T (2009) Do institutions have a greater effect on female entrepreneurs? IZA discussion paper no. 4577
- Finlay K, Magnusson L (2009) Implementing weak-instrument robust test for a general class of instrumental variable models. *Stata J* 9(3):398–421
- Gonzalez-Alvarez N, Solis-Rodriguez V, Guzman-Goyanes J (2012) Social factors and new venture decisions: the analysis based on the study of cognitive factors. *Transform Bus Econ* 11(1): 154–166
- Halimi AB, Chavoshb A, Sharifc A, Namdard J, Behjatie S (2011) Entrepreneur women in Iran: a review of challenges and approaches to remove barriers of women entrepreneurship in Iran. In: *International conference on economics, business and marketing management (EBMM 2011)*, Shanghai, China, 11–13 Mar 2011, pp 114–117
- Hattab H (2012) Towards understanding female entrepreneurship in Middle Eastern and North African countries: a cross-country comparison of female entrepreneurship. *Edu Bus Soc Contemp Middle East Issues* 5(3):171–186
- Helms MM (2003) Japanese managers: their candid views on entrepreneurship. *Compet Rev* 13(1): 24–34
- Hintermaier T, Steinberger T (2005) Occupational choice and the private equity premium puzzle. *J Econ Dyn Control* 29:1765–1783
- International Monetary Fund (2014) *West bank and Gaza: report to the ad-hoc Liaison committee*
- Kelly D, Singer S, Herrington M (2012) *Global entrepreneurship monitor global report 2011*. Global Entrepreneurship Research Association
- Klapper LF, Parker SC (2011) Gender and the business environment for new firm creation. *World Bank Res Obs* 26(2):237–257
- Koellinger P, Minniti M, Schade C (2007) I think I can, I think I can: overconfidence and entrepreneurial behavior. *J Econ Psychol* 28(4):502–527
- Koellinger P, Minniti M, Schade C (2013) Gender differences in entrepreneurial propensity. *Oxford Bull Econ Stat* 75(2):213–230

- Lee L, Wong PK, Ho YP (2004) Entrepreneurial propensities: the influence of self-efficacy, opportunity perception, and social network. In: Paper presented at the first GEM research conference Berlin, Germany, 1–3 Apr 2004
- Levesque M, Minniti M (2006) The effect of aging on entrepreneurial behavior. *J Bus Ventur* 21(2): 177–194
- Llussá F (2010) Determinants of entrepreneurship: are women different? FEUNL working paper 555. Universidade Nova de Lisboa, Lisboa
- Ministry of Economy, Trade, and Industry (JMETI) (2010) The annual report on Japanese women entrepreneurs
- Minniti M (2005) Entrepreneurship and network externalities. *J Econ Behav Org* 57:1–27
- Minniti M, Nardone C (2007) Being in someone else's shoes: the role of gender in entrepreneurship. *Small Bus Econ* 28:223–238
- Minniti M, Naudé WA (2010) What do we know about the patterns and determinants of female entrepreneurship across countries? *Eur J Dev Res* 22(3):277–293
- Minniti M, Allen IE, Langowitz N (2005) Global entrepreneurship monitor 2005. Report on women and entrepreneurship, Babson College and London Business School, Babson Park
- Niederle M, Vesterlund L (2007) Do women shy away from competition? Do men compete too much? *Q J Econ* 122(3):1067–1101
- Ozdemir O, Karadeniz E (2009) Differences between being opportunity-driven and necessity-driven entrepreneur: evidence from Turkey's GEM data. In: Proceedings of the European conference on entrepreneurship and innovation, p 350
- Palestinian Central Bureau of Statistics (2015) Labor force survey. Annual report: 2014, Ramallah, Palestine
- Pete Ş, Nagy A, Györfy L-Z, Benyovszki A, Petru TP (2010) The evolution of early-stage entrepreneurial activity influencing factors in Romania. *Theoret Appl Econ* 17(7):5–14
- Reynolds P, Bygrave B, Hay M (2003) Global entrepreneurship monitor. E.M. Kauffman Foundation, Kansas City
- Reynolds P, Bosma N, Autio E, Hunt S, De Bono N, Servais I, Lopez-Garcia P, Chin N (2005) Global entrepreneurship monitor: data collection design and implementation 1998–2003. *Small Bus Econ* 24:205–231
- Roodman D (2009) Estimating fully observed recursive mixed-process models with Cmp. http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1392466
- Roussanov N, Savor P (2014) Marriage and managers' attitudes to risk. *Manag Sci* 60(10): 2496–2508
- Sadeq T, Hamed M, Glover S (2011) Policies to promote female entrepreneurship in the Palestinian territory. Palestine Economic Policy Research Institute (MAS), Ramallah
- Sarfaraz L, Faghih N (2011) Women's entrepreneurship in Iran: a GEM based-data evidence. *J Glob Entrep Res* 1(1):45–57
- Shane S, Venkataraman S (2000) The promise of entrepreneurship as a field of research. *Acad Manag Rev* 25(1):217–226
- Stark O, Zawojcka E (2015) Gender differentiation in risk-taking behavior: on the relative risk aversion of single men and single women. *Econ Lett* 137:83–87
- Steier L (2000) Entrepreneurship and the evolution of angel financial networks. *Organ Stud* 21(1): 163–192
- Van Stel A, Wennekers S, Thurik R, Reynolds P, de Wit G (2003) Explaining nascent entrepreneurship across countries. Scientific analysis of entrepreneurship and SMEs, SCALES-paper N200301
- Verheul I, Thurik R, Grilo I, van der Zwan P (2011) Explaining preferences and actual involvement in self-employment: gender and the entrepreneurial personality. *J Econ Psychol* 33(2):325–341. <https://doi.org/10.1016/j.joep.2011.02.009>
- Wagner J (2004) Nascent entrepreneurs. IZA DP no. 1293