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Feminization of entrepreneurship in developing countries*

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Abstract

We analyze whether male or female individuals have a higher probability of becoming entrepreneurs in developing regions (Africa, Asia, South America), controlling by individuals' entrepreneurial environment and countries' macroeconomic context. Using the GEM data, we avoid heterogeneity and the potential confounding problems arising from the definition of entrepreneurship. We find that women tend to become entrepreneurs more often than men in South America and Africa, highlighting the importance of entrepreneurship as a survival labor choice. No gender gaps in entrepreneurial participation are found in Asia.

Keywords: *Entrepreneurship; Gender; Feminist; Developing countries*

JEL Codes: *L26, J16, O10, O57*

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1. Introduction

Gender differences have been analyzed in a range of economic settings, including entrepreneurial activity, and in general it is found that women are less willing to be entrepreneurs and have lower rates of success in doing so (Boden and Nucci, 2000; Du Rietz and Henreckson, 2000; Fairlie and Robb, 2009; Robinson and Stubberud, 2009), although it is not known exactly whether these differences are tied to personal attributes or to universal phenomena (Minniti and Nardone, 2007). However, as posed in Artz (2016), most of these analyses suffer from the lack of key controls, biasing conclusions. Examples of such controls are individual heterogeneity (Cliff, 1998), scale (Robb and Watson, 2012), and business size (Artz, 2016). When these key variables are taken into account, gender gaps tend to disappear. Further, most of these studies are carried out for the developed economies. In developing countries, where there has been an increasing interest in the promotion of entrepreneurship in recent years, women still have lower rates of labor force participation (Mondragón-Vélez and Peña, 2010; Gimenez-Nadal, Molina and Ortega, 2012). Few analyses have been developed for these countries, in contrast with the literature for the developed world, and thus understanding entrepreneurship, a complex social and labor phenomenon, requires further analyses (Mondragón-Vélez and Peña, 2010; Coduras *et al.*, 2015; Orazem, Jolly and Yu, 2015).

We empirically analyze the participation in entrepreneurial activity in three developing regions (Africa, Asia, South America), emphasizing the role of gender and controlling for certain attributes related to the individual appreciation of the entrepreneurial environment. We also control for cross-country entrepreneurial-related variables. To the best of our knowledge, this combination of macro- and micro-economic variables is not a common approach in entrepreneurship empirical models, but may meaningfully reduce the unobservable factors and provide more accurate results. A logit model on the probability to be or become an entrepreneur is developed for individuals residing in developing countries, using the GEM Global Individual Level data. We find that in South America and Africa, women tend to become entrepreneurs more often than men, but this difference is not significant in the case of Asian countries. Further, our results highlight how women and men become entrepreneurs for different reasons, and from within different scenarios, since their individual characteristics are very different. This leads us to a conclusion of the importance of necessity as a determinant for females, in beginning an entrepreneurial activity as a source of income.

2. Data and methodology

The data is taken from the GEM 2014 Global Individual Level database, which contains harmonized cross-sectional micro-data on entrepreneurial-related factors of individuals worldwide. The major advantage of this data is the definition of entrepreneur, arising from the contribution to the TEA (*Total Early-Stage Entrepreneurial Activity* index, which assesses the percentage of the population that is both about to begin, or has already started an entrepreneurial activity (for a maximum of 42 months), while avoiding selection biases. This could be especially important in the case of developing economies (Mondragón-Vélez and Peña, 2010)¹. More information about GEM data can be found at <http://www.gemconsortium.org/data/sets>. Our sample is limited to those individuals living in developing areas of Africa (Angola and Uganda), Asia (Malaysia, Indonesia, Philippines, Singapore, Thailand, Vietnam, India, Iran, Angola, Uganda, Guatemala, Panama, Ecuador, Uruguay, Jamaica and Taiwan) and South America (Peru, Argentina, Brazil, Colombia), which leaves us with a selection of 56,266 individuals; 27,139 males and 29,127 females, of whom 9,747 are entrepreneurs. In order to avoid biases from an overly-heterogeneous sample, we have pooled the observations into three groups: Africa, Asia, and South America.

In addition to gender, which is the key independent variable to analyze, we include the following features: demographic, individual, and labor information (age, education level, family size, entrepreneurial skills, fear of failure, being an employee, being self-employed, a businessman, or a student), peer effects, and self-reported consideration of the entrepreneurial environment (opportunities, support of Media, and cultural support). Descriptive statistics of these variables, by gender and group of countries, are shown in Table 1. We also take into account macro-economic-level characteristics, taken from the GEM 2014 National Experts Survey. We include the following controls: Financial environment, Government policy support, Bureaucracy and taxes, Government programs, R&D transfers, Commercial infrastructures, Market burdens, and Socio-cultural support. These controls may help us deal with non-individual phenomena (Minniti and Nardone, 2007).

¹ There is no consensus about how entrepreneurs should be defined, e.g., self-employed (Blanchflower and Oswald, 1998; Molina, Ortega and Velilla, 2015), business owners (Cagetti and De Nardi, 2006); businessmen without employees (Artz, 2016); or all together (Akyol and Athreya, 2009). Within this framework, GEM's definition and data have achieved great importance in the scientific field and have become a source of agreement.

(Table 1 about here)

A logistic model of the probability of becoming or being an entrepreneur is developed as follows: for an individual “ i ” residing in country “ j ”, let p_i be the probability of being an entrepreneur, G_i the gender (1 for males and 0 for females), X_i a vector of individual controls, and α_j a vector of macro-economic fixed-effects. We estimate Equation (1), for the three groups of countries:

$$\ln\left(\frac{p_i}{1-p_i}\right) = \beta_0 + \beta_G G_i + \beta_X X_i + \alpha_j + \varepsilon_i \quad (1)$$

where ε_i are unmeasured factors. Under this specification, $\beta_G < 0$ would mean that women are more prone to be entrepreneurs than men. Further, we analyze the differences in the probability of becoming an entrepreneur across males and females. Then, we estimate Equation (1) for each of the three groups of countries, by gender.

3. Empirical results

Columns (1), (4) and (7) in Table 2 show estimates of Equation (1) for South American, Asian, and African countries, respectively. We find that being male is negatively related to the probability of being an entrepreneur, with these differences being significant at the 99% level only in South America and Africa. Being female is associated with increases of 7.4% in the logit of the probability to be an entrepreneur in South America, and of 36.4% in Africa. In Asia, we find that men and women tend to be entrepreneurs with the same degree of probability. That is to say, controlling for socio-demographic, labor, individual environment, and several macro-economic variables, men do not tend to be entrepreneurs more often than women in the developing economies, in contrast with the situation in the developed countries. Finally, we find that Media are not providing incentives to individuals to become entrepreneurs in any of the analyzed cases, and social support is only important in Asia.

Columns (2), (5) and (8) in Table 2 show results for males, and Columns (3), (6) and (9) for females, in each of the three groups of countries. In the case of South American countries,

we find that the level of education is positively related to entrepreneurship only for men (in line with Kourilsky and Walstad, 1998), and also that the aversion to risk is only significant for males. In contrast, family size is only significant and positive in the case of women. Peer effects and opportunities have a strong presence for both genders. These differences suggest that women are entrepreneurs involuntarily, mainly because of necessity and survival (Perry *et al.*, 2007), or because of marriage (Brush, Bruin and Welter, 2009) and household responsibilities (Leung, 2011; Gimenez-Nadal, Molina and Ortega, 2012), and these businesses do not appear to require special skills and knowledge. The GEM data allows us to analyze the reasons for being an entrepreneur, including necessity. In particular, we find that 22.04% of the male entrepreneurs are involved in a necessity activity, in contrast with 29.18% of the female entrepreneurs.

(Table 2 about here)

In the case of Asian countries, we find that results are qualitatively similar for men and women; i.e., it appears that the differences found for South American countries are not present in Asia. Peer effects and opportunities are again significant for males and females, and education is significant and positive for both. For Africa, it is shown that the education level appears not to affect male decisions to be entrepreneurs. Furthermore, females with secondary education become entrepreneurs more often, but not those who have gone to University. Also, skills and fear of failure only affect women's decisions, not men's; and the contrary happens with family size, peer effects, and opportunities. These differences may indicate that, in African countries, men become entrepreneurs primarily in a search for opportunities to expand the family income, while women's entrepreneurial activities may be related to necessity, and motivated by specific skills (Herrington *et al.*, 2010). It must be remarked that, in certain African countries women have traditionally been the heads of families, justifying these trends. (Kiggundu, 2002, presents a comprehensive view of entrepreneurship in Africa.

Because sample heterogeneity may have introduced bias into our estimates, we present in Table 3 estimates of Equation (1) for the countries with more observations: Brazil (Column (1)), Indonesia (Column (2)), and Uganda (Column (3)), and we find that women become, or are, entrepreneurs more often than men in Brazil and Uganda, but not in Indonesia, in line with Table 2.

(Table 3 about here)

4. Conclusions

We use the GEM Global Individual Level data to find gender differences in entrepreneurial participation in South America and Africa: controlling for socio-demographic, macro-economic, and environmental individual variables, women tend to be entrepreneurs more often than men, and the type of entrepreneurship performed by both genders is different, with level of education and knowledge not being as important for females, supporting the notion that women become entrepreneurs for different reasons than do men. However, some general rules are found, mainly connected to peer effects, skills, and opportunities. The role of Media is found to be negligible, and sociocultural support appears to be significant only in Asia.

Limitations of our study are due, mainly, to the nature of the data. Since the GEM data is an international database, we do not have a sufficiently large number of observations to propose cross-country results. Then, we must acknowledge selection biases. Further, cross-sectional analyses have the limitation of not allowing us to perform causality analyses. However, our analysis does show that females tend to be or become entrepreneurs more often than men in the developing countries, in contrast with what happens in many developed economies.

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Table 1
Summary statistics

VARIABLES	South America				Asia				Africa			
	Male		Female		Male		Female		Male		Female	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Being an entrepreneur	0.204	0.403	0.165	0.371	0.167	0.373	0.130	0.336	0.238	0.426	0.243	0.429
Age	38.34	14.22	39.05	14.25	37.25	12.54	37.34	12.14	33.31	12.62	33.77	12.84
Basic ed.	0.301	0.459	0.336	0.472	0.245	0.430	0.288	0.453	0.443	0.497	0.364	0.481
Secondary ed.	0.584	0.493	0.556	0.497	0.523	0.499	0.503	0.500	0.497	0.500	0.552	0.497
University ed.	0.115	0.319	0.107	0.310	0.233	0.422	0.209	0.407	0.060	0.237	0.084	0.277
Entrepreneurial skills	0.639	0.480	0.548	0.498	0.527	0.499	0.443	0.497	0.680	0.466	0.720	0.449
Fear of failure	0.321	0.467	0.390	0.488	0.393	0.488	0.438	0.496	0.291	0.454	0.290	0.454
Family size	3.736	1.943	3.906	1.937	4.207	1.730	4.276	1.758	5.162	3.498	5.481	3.857
Being salaried	0.561	0.496	0.651	0.477	0.554	0.497	0.662	0.473	0.313	0.464	0.241	0.428
Being self-employed	0.126	0.332	0.089	0.285	0.098	0.298	0.068	0.252	0.148	0.355	0.147	0.354
Being a businessman	0.220	0.414	0.166	0.372	0.255	0.436	0.186	0.389	0.370	0.483	0.422	0.494
Being a student	0.117	0.322	0.110	0.312	0.101	0.302	0.090	0.286	0.258	0.438	0.312	0.463
Know someone with entrepreneurial exp.	0.418	0.493	0.317	0.465	0.492	0.500	0.410	0.492	0.634	0.482	0.742	0.438
Consider to have opportunities to be entrep.	0.536	0.499	0.483	0.500	0.392	0.488	0.356	0.479	0.596	0.491	0.671	0.470
Media support for entrepreneurs	0.678	0.467	0.668	0.471	0.715	0.451	0.717	0.451	0.704	0.457	0.733	0.442
High cultural support for entrepreneurs	0.707	0.455	0.688	0.463	0.712	0.453	0.711	0.453	0.758	0.429	0.775	0.418
Observations	13,102		14,805		11,673		12,027		2,364		2,295	

Table 2
Logit model estimates

VARIABLES	South America			Asia			Africa		
	(1) General	(2) Male	(3) Female	(4) General	(5) Male	(6) Female	(7) General	(8) Male	(9) Female
Age	-0.031*** (0.002)	-0.032*** (0.002)	-0.028*** (0.002)	-0.028*** (0.002)	-0.029*** (0.003)	-0.026*** (0.003)	-0.033*** (0.005)	-0.026*** (0.007)	-0.040*** (0.007)
Being male	-0.074** (0.037)	-	-	-0.077 (0.048)	-	-	-0.364*** (0.107)	-	-
Secondary ed.	0.109** (0.049)	0.236*** (0.070)	-0.030 (0.070)	0.254*** (0.069)	0.293*** (0.099)	0.234** (0.099)	0.329*** (0.114)	0.177 (0.158)	0.537*** (0.168)
University ed.	0.323*** (0.069)	0.576*** (0.094)	0.024 (0.102)	0.645*** (0.086)	0.746*** (0.117)	0.543*** (0.129)	0.144 (0.308)	0.224 (0.386)	0.0262 (0.508)
Entrepreneurial skills	0.741*** (0.043)	0.773*** (0.063)	0.729*** (0.060)	0.522*** (0.056)	0.552*** (0.073)	0.460*** (0.085)	0.554*** (0.185)	-0.009 (0.253)	1.079*** (0.278)
Fear of failure	-0.049 (0.039)	-0.125** (0.056)	0.006 (0.057)	-0.208*** (0.048)	-0.202*** (0.065)	-0.210*** (0.073)	0.197 (0.136)	0.117 (0.198)	0.330* (0.198)
Family size	0.006 (0.010)	-0.017 (0.014)	0.033** (0.014)	-0.010 (0.014)	-0.021 (0.018)	0.006 (0.021)	-0.064*** (0.019)	-0.076*** (0.025)	-0.048 (0.031)
Being salaried	0.766*** (0.130)	1.038*** (0.183)	0.447** (0.189)	0.973*** (0.231)	1.041*** (0.294)	0.957** (0.376)	1.534** (0.696)	2.009** (0.844)	0.949 (1.221)
Being self-employed	2.708*** (0.130)	2.810*** (0.182)	2.571*** (0.190)	4.088*** (0.228)	3.921*** (0.289)	4.346*** (0.372)	4.080*** (0.682)	3.880*** (0.825)	4.200*** (1.192)
Being a businessman	3.269*** (0.129)	3.302*** (0.180)	3.192*** (0.186)	4.300*** (0.226)	4.118*** (0.286)	4.553*** (0.371)	4.329*** (0.676)	4.076*** (0.815)	4.461*** (1.183)
Being a student	0.127 (0.095)	0.105 (0.127)	0.094 (0.142)	0.389** (0.171)	0.473** (0.219)	0.266 (0.272)	0.378 (0.329)	0.654* (0.373)	-0.269 (0.639)
Know someone with entrep. exp.	0.461*** (0.039)	0.549*** (0.053)	0.379*** (0.057)	0.322*** (0.054)	0.290*** (0.073)	0.347*** (0.081)	0.164 (0.116)	0.456** (0.190)	-0.059 (0.155)
Consider to have opp. to be entrep.	0.335*** (0.038)	0.327*** (0.053)	0.334*** (0.055)	0.365*** (0.049)	0.293*** (0.066)	0.455*** (0.075)	0.242* (0.142)	0.491** (0.240)	0.103 (0.186)
Media support for entrepreneurs	-0.002 (0.053)	0.001 (0.073)	0.012 (0.077)	0.073 (0.067)	0.096 (0.090)	0.051 (0.102)	0.029 (0.187)	-0.361 (0.281)	0.247 (0.262)
High cultural support for entrepr.	0.043 (0.056)	0.112 (0.077)	-0.029 (0.081)	0.255*** (0.069)	0.276*** (0.091)	0.225** (0.107)	-0.361 (0.259)	-0.296 (0.373)	-0.247 (0.363)
Constant	0.365 (1.983)	-1.369 (2.744)	2.516 (2.925)	-2.830*** (0.486)	-3.278*** (0.663)	-2.960*** (0.758)	-3.776*** (0.762)	-3.712*** (0.956)	-4.266*** (1.284)
Institutional F.E.	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	27,907	13,102	14,805	21,693	10,685	11,008	2,513	1,214	1,299

Note: robust standard errors in parentheses. ***, **, * reflect statistical significance at the 99%, 95%, and 90% levels, respectively.

Table 3
Logit model estimates for Brazil, Indonesia and Uganda

VARIABLES	(1) Brazil	(2) Indonesia	(3) Uganda
Age	-0.039*** (0.003)	-0.030*** (0.004)	-0.033*** (0.005)
Being male	-0.414*** (0.068)	0.023 (0.089)	-0.364*** (0.107)
Secondary ed.	-0.022 (0.077)	0.309** (0.125)	0.329*** (0.114)
University ed.	0.150 (0.140)	0.289* (0.174)	0.144 (0.308)
Entrepreneurial skills	0.407*** (0.074)	0.183 (0.111)	0.554*** (0.185)
Fear of failure	0.069 (0.071)	-0.161* (0.093)	0.197 (0.136)
Family size	-0.009 (0.022)	-0.050 (0.035)	-0.064*** (0.019)
Being salaried	0.359 (0.231)	13.690*** (0.399)	1.534** (0.696)
Being self-employed	6.410*** (0.441)	17.81*** (0.371)	4.080*** (0.682)
Being a businessman	3.451*** (0.221)	18.150*** (0.353)	4.329*** (0.676)
Being a student	0.219 (0.163)	0.797** (0.345)	0.378 (0.329)
Know someone with entrep. Exp.	0.260*** (0.070)	0.306** (0.123)	0.164 (0.116)
Consider to have opp. to be entrep.	0.301*** (0.067)	0.382*** (0.093)	0.242* (0.142)
Media support for entrepreneurs	0.114 (0.115)	-0.224 (0.137)	0.029 (0.187)
High cultural support for entrepr.	0.171 (0.125)	0.317** (0.153)	-0.361 (0.259)
Constant	-2.698*** (0.286)	-17.570 *** (0.433)	-3.776*** (0.762)
Observations	10,000	4,500	2,513

Note: robust standard errors in parentheses. ***, **, * reflect statistical significance at the 99%, 95%, and 90% levels, respectively.