ISSN: 2771-7763

Research Article

Journal of Economic Research & Reviews

What Explains International Differences in Entrepreneurship Rates

Fernanda Llussá*

Nova School of Science and Technology, Universidade Nova de Lisboa

***Corresponding Author**
Fernanda Llussá, Nova School of Science and Technology, Universidade Nova de Lisboa

Submitted: 2023, June 10; **Accepted:** 2023, July 12; **Published:** 2023, Sep 01

Citation: Llussá, F. (2023). What Explains International Differences in Entrepreneurship Rates. *J Eco Res & Rev, 3*(3), 213-220.

Abstract

In this paper we investigate, for the first time, how individual determinants of entrepreneurship - such as age, income, education, work status, skills, access to networks and fear of failure - differ between males and females. We conduct our exercise using individual data provided by the Global Entrepreneurship Monitor (GEM), available for 46 countries, between 2001 and 2004. The literature on entrepreneurship has uncovered differences in the rate of entrepreneurship between men and women, with women generally displaying lower entrepreneurial activity than men. This is important since, as we show, entrepreneurial activity is positively related across countries with the female to male entrepreneurial ratio. We examine total entrepreneurship rates, as well as entrepreneurship driven by opportunity and by need. We find that indeed entrepreneurial activity rates are lower for females across all but one of the countries in the sample. Looking at categorical groups – by age interval, education, work status, etc. – we find that female entrepreneurial rates are significantly lower than for males. Results for entrepreneurship by opportunity and by necessity confirm the larger importance of specific skills for women creating new businesses. Our results suggest that facilitating access to business networks and specific business skills are the most powerful instruments to increase the rates of female entrepreneurship.

Keywords: Determinants of Entrepreneurship, Opportunity, Necessity, Skills, Networks

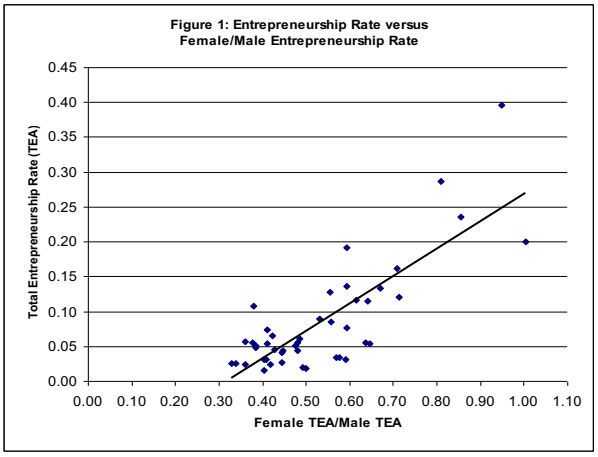
1. Introduction

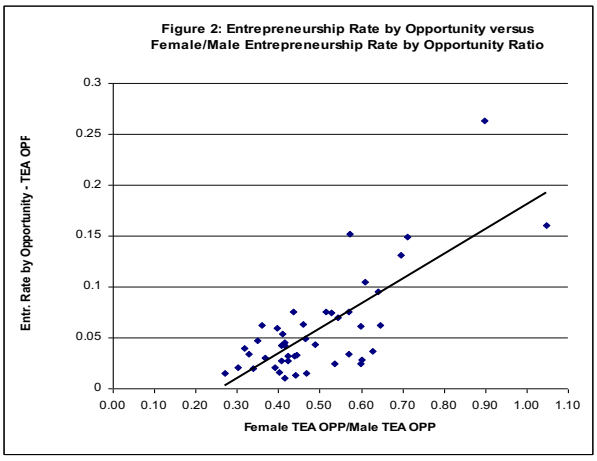
A new and growing literature has uncovered the importance of personal characteristics as determinants of entrepreneurial activity [1]. Characteristics such as education, personal income, work status and access to a network of entrepreneurs have been shown to affect the likelihood that any one person attempts to start a new business. A robust empirical fact receiving much less attention is the fact that, over time and across countries, entrepreneurship rates among women are about half those of males [2]. Though discussed and noted by several authors, little has been done to explain what factors lie behind this important fact, including different personal characteristics, different returns to the characteristics and different goals when opening a business [3-5]. In other words, understanding the reasons why women are less frequently at the helm of new business ventures is a first step to devise policies that both help bridge the entrepreneurial gender gap as well as increase overall entrepreneurial activity. The latter is an important objective, as new firm creation is a major element in furthering economic growth and job creation [6]. This paper undertakes a cross-country study of the determinants of entrepreneurship with a view to answer three related questions: first, do female entrepreneurs differ from their male counterparts? second, do the personal determinants of entrepreneurial activity differ between females and males? An important issue related to our empirical study is whether women suffer from discrimination when planning to start a business. Discrimination at the workplace is an important subject of study and recent studies have uncovered discrimination in other areas, including in the key area of access to credit [7]. Women receive less pay irrespective of their characteristics, as shown by the labour economics literature on gender discrimination [8]. Though we discuss the possible discrimination against women that want to start a business, our focus is instead on the differential determinants of entrepreneurial activity by females. However, we recognize that entrepreneurship may be an effective antidote to discrimination based on prejudice and on employers´ preferences, as it provides women with an autonomous avenue to circumvent social obstacles to employment, career progress and fair returns on effort.

Understanding the determinants of entrepreneurial activity by females is important also for policy reasons. First, increasing firm creation by females is a way to increase the productivity of the economy overcoming unnecessary barriers to women´s labour force participation, initiative and talent; second, females may be more able and more interested than males in undertaking activities in areas that that are particularly innovative and beneficial for the economy. Our discussion is interesting in the context of the allocation of talent model, which see the stock of talent – for instance, among women – as relatively constant but its allocation towards a range of activities possibly subject to major changes in response to institutions and policies [9]. More specifically, in the study of entrepreneurship, several authors have suggested that, while the stock of entrepreneurs is relatively constant, the nature and social impact of their activities can change dramatically with country institutions [10].

1.1. Gender and Entrepreneurship: Data and Summary Statistics

In this section we present the data on entrepreneurial activity across countries and over time, and relate it to individual characteristics of males and females. Figures 1 and 2 in the next session plot the entrepreneurship rate by country against the female to male entrepreneurship rate ratio. There is a clear positive relation between the two variables, so that countries where women are relatively less entrepreneurial are also countries where total entrepreneurial activity is lower.





2. Data

In our empirical analysis we will draw on data from the Adult Population Surveys, collected by the Global Entrepreneurship Monitor (GEM). This data contains detailed information on individuals from 46 countries. We can assess whether an individual is starting a new business, owns or manages a young firm, we can assess (at least partially) their motivation to start a firm, and consider personal characteristics such as age, income, education, work status and skills. These micro survey data is collected annually and is made consistent across countries [11]. In this paper we use yearly data from 2001 to 2004 [12].

On the reliability of GEM data, Ardagna and Lusardi (2008) compare the GEM data with the Flash Eurobarometer Survey on Entrepreneurship collected by the European Commission for countries that are common to both data sets [13]. The percentage of individuals involved in entrepreneurial activity is very similar in both datasets. The same is true for individuals pursuing a business opportunity or for whom entrepreneurship is for necessity. Results are also very similar when the authors compare individual characteristics such as age, sex and work status [14]. Acs, Desai and Klapper (2007) compare GEM data to the World Bank Group datasets (WBEGS) which reports formal entrepreneurial activity as the number of newly registered firms of limited liability corporations (LLCs). From GEM data the authors compute the "nascent entrepreneurship rate" – share of individuals actively involved in starting a new venture – and "baby entrepreneurship rate" – share of people that are owners or managers of a business less than 42 months old [15]. From the World Bank data, these authors compute the "corporate entrepreneurship rate" as the percentage of newly registered limited liability firms as a percentage of adult population. For the 41 countries examined between 2003 and 2005, Acs, Desai and Klapper (2007) find that GEM data tends to report significantly lower levels of early-stage that entrepreneurial activity in developed countries. Focusing on formal businesses, as WBEGS does, leads to the inclusion of initiatives that do not correspond to entrepreneurial activity, associated with legal incentives, in developed countries, to formally create new organizations [16]. As GEM data computes the number of individuals entrepreneurs, it may overlook individuals that are involved in multiple businesses. Acs, Desai and Kappler (2007) confirm that GEM data reports higher rates of entrepreneurship for developing countries, which the authors explain by the importance of the informal sector, captured by GEM data. Reynolds et al. (2005) compare GEM estimates on new firm´s birth rate and national annual new firm´s estimates with the Official New Firm Census and data from the European Commission Report. They show that TEA index as well as other indexes calculated using GEM data are reliable and consistent with other datasets. A study like ours, interested in assessing how personal characteristics affect entrepreneurial rates, particularly how they differ across gender, would like a data set that covers the widest possible number of individuals, independently of whether in the formal or informal sector, and give less salience to formal and legal aspects. We thus consider that GEM data is the appropriate choice.

2.1. Does Entrepreneurial Activity Differ Across Gender?

Table 1 presents total entrepreneurship rates (TEA) in the male and female population, for a cross-section of countries. These are individuals who are either starting a new business or are owners or managers of a young firm. In addition to total entrepreneurial activity, we also report rates of entrepreneurial activity driven by opportunity (TEA OPP) and by need (TEA NEC). Individuals who claim they are starting a new business to take advantage of a business opportunity are considered driven by opportunity; those that claim they could find no better job are classified as driven by necessity. TEA OPP and TEA NEC sum up to total entrepreneurial activity, TEA. Please note that in virtually all countries in the sample TEA rates for females are smaller that TEA rates for males. This is evident in the last column of Table 1, where we compute the female to male TEA rates. The single exception to the rule is Thailand, where this ratio is equal to one. The lowest female to male TEA ratio is that of Croatia which

compares, at 0.33, with the sample average of 0.53. On average females display half of the entrepreneurial activity than males.

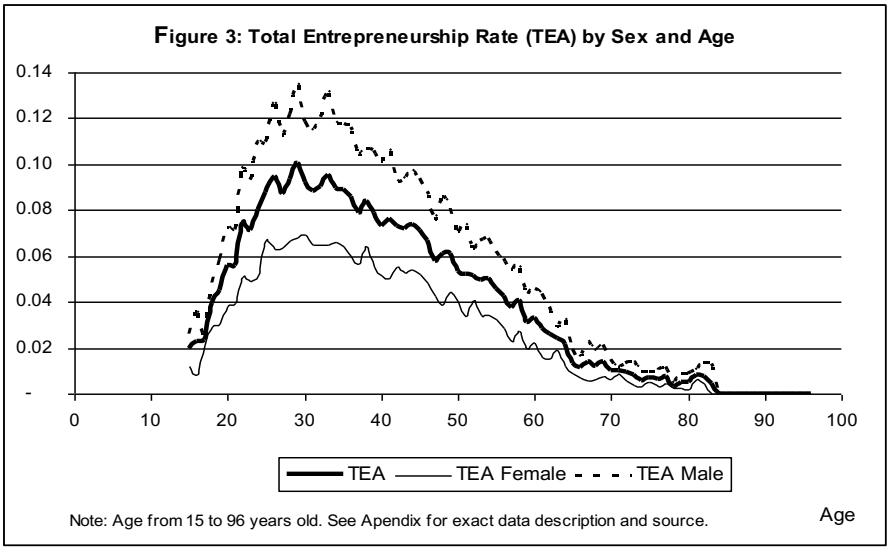
This gender imbalance is even more pronounced for entrepreneurial activity driven by opportunity - TEA OPP, in columns (6) and (7) -, and less pronounced for entrepreneurial activity driven by need – columns (9) and (10) -, as summarized in the Column "All". In general low income countries display higher entrepreneurial activity rates, and more balanced between females and males. In poor countries, entrepreneurs are relatively more driven by need than opportunity. In sum, entrepreneurs are more likely to arise in poor countries, where they are also more likely to be females driven by necessity.

	N.Obs.	TEA (%)			TEA OPP (%)			TEA NEC (%)			TEA Fem/ Male
		All	Fem	Male	All	Fem	Male	All	Fem	Male	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
Argentina	7998	12.77	9.18	16.58	7.54	4.64	10.62	4.69	4.10	5.31	0.55
Australia	7661	7.68	6.00	10.10	6.13	4.81	8.05	1.16	0.82	1.66	0.59
Belgium	12158	2.37	1.31	3.63	1.94	1.03	3.04	0.21	0.18	0.25	0.36
Brazil	10000	12.05	10.01	14.01	6.18	4.83	7.47	5.52	4.92	6.10	0.71
Canada	5944	6.12	3.99	8.24	4.86	3.08	6.63	0.98	0.68	1.27	0.48
Chile	4008	13.37	10.75	16.05	7.58	5.53	9.69	5.09	4.69	5.50	0.67
China	3661	11.69	8.97	14.61	6.28	4.01	8.72	5.11	4.59	5.66	0.61
Chinese Shenzhen	2040	7.45	4.25	10.34	5.98	3.32	8.36	1.42	0.83	1.95	0.41
Croatia	6017	2.49	1.31	3.99	1.50	0.68	2.52	0.71	0.45	1.05	0.33
Denmark	8048	4.57	2.79	6.52	4.20	2.48	6.08	0.22	0.19	0.26	0.43
Finland	8011	3.37	2.45	4.30	2.83	2.13	3.54	0.24	0.17	0.30	0.57
France	7991	1.91	1.30	2.60	1.49	0.97	2.07	0.34	0.28	0.40	0.50
Germany	37156	4.37	2.91	6.05	3.20	2.01	4.58	0.98	0.77	1.23	0.48
Greece	4008	5.71	3.11	8.65	3.97	1.98	6.21	1.52	1.13	1.96	0.36
Hong Kong	6004	2.43	1.47	3.52	1.60	0.94	2.34	0.82	0.50	1.17	0.42
Hungary	6878	5.60	4.37	6.87	3.69	2.86	4.56	1.53	1.29	1.78	0.64
India	5058	13.56	10.02	16.91	7.55	5.09	9.88	5.16	4.36	5.92	0.59
Iceland	6013	9.00	6.27	11.82	7.47	5.19	9.82	0.63	0.39	0.88	0.53
Ireland	7920	6.59	4.02	9.49	5.38	3.21	7.82	1.00	0.62	1.42	0.42
Israel	5992	4.81	2.73	7.10	3.00	1.65	4.50	0.87	0.67	1.09	0.38
Italy	8887	3.39	2.50	4.34	2.50	1.76	3.29	0.35	0.37	0.33	0.58
Japan	7893	1.63	0.94	2.33	1.04	0.61	1.47	0.35	0.23	0.48	0.40
Jordania	2000	19.10	13.70	23.12	15.20	10.66	18.59	2.85	1.76	3.66	0.59
Korea (South)	4023	10.84	6.00	15.79	6.19	3.29	9.15	3.38	1.67	5.13	0.38
Mexico	3016	16.15	14.13	19.92	10.51	8.59	14.11	4.97	5.03	4.86	0.71
Netherlands	12535	3.18	1.95	4.79	2.77	1.74	4.12	0.26	0.11	0.44	0.41
New Zealand	7848	11.53	9.31	14.53	9.57	7.72	12.07	1.67	1.30	2.16	0.64
Norway	9833	5.55	3.06	8.14	4.75	2.48	7.10	0.41	0.24	0.58	0.38
Peru	2007	39.61	38.60	40.68	26.31	24.93	27.77	12.95	13.19	12.70	0.95
Poland	6001	5.48	3.58	7.44	3.25	1.94	4.60	2.13	1.54	2.74	0.48
Portugal	3000	4.47	2.81	6.28	3.40	1.72	5.24	1.00	1.02	0.98	0.45
Russia	2190	1.96	1.34	2.72	1.32	0.84	1.91	0.41	0.42	0.40	0.49
Scotland(UK)	2118	2.64	1.67	3.76	2.12	1.23	3.15	0.47	0.35	0.61	0.44
Singapore	9735	5.11	2.83	7.36	4.26	2.50	6.01	0.74	0.31	1.17	0.38
Slovenia	6045	2.58	1.31	3.88	2.03	0.95	3.14	0.51	0.33	0.70	0.34

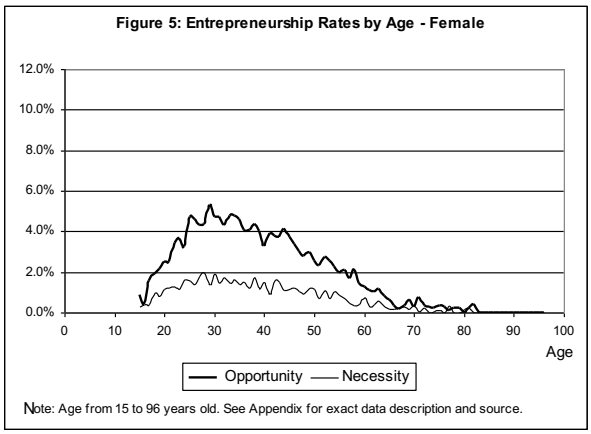
South Africa	15519	5.39	4.23	6.54	3.36	2.44	4.28	1.61	1.52	1.70	0.65
Spain	27996	5.37	3.11	7.59	4.51	2.64	6.37	0.75	0.41	1.09	0.41
Sweden	32780	3.13	1.78	4.41	2.70	1.54	3.79	0.34	0.18	0.49	0.40
Switzerland	4004	5.09	3.39	7.14	4.32	2.93	5.99	0.60	0.37	0.88	0.47
Taiwan	2236	3.09	2.23	3.77	2.50	1.82	3.04	0.45	0.20	0.64	0.59
Thailand	1043	20.04	20.06	20.00	16.01	16.30	15.56	3.16	3.13	3.21	1.00
Uganda	3020	28.71	25.89	32.01	14.87	12.52	17.63	12.78	12.64	12.95	0.81
UK	66434	4.07	2.66	5.99	3.31	2.16	4.87	0.60	0.38	0.91	0.44
US	21056	8.57	6.17	11.07	6.98	4.95	9.10	1.03	0.81	1.26	0.56
Venezuela	2000	23.55	21.7	25.4	13.15	10.80	15.50	9.45	10.00	8.90	0.85
All	425785	5.92	4.17	7.88	4.32	2.91	5.90	1.32	1.06	1.61	0.53
Low Income WB	8078	19.23	16.35	22.17	10.29	8.05	12.58	8.01	7.66	8.37	0.74
Mid Low Inc. WB	10751	18.29	15.87	20.71	12.57	10.41	14.73	5.26	4.94	5.59	0.77
Up Mid Inc. WB	63627	8.59	6.79	10.50	5.02	3.65	6.49	3.15	2.84	3.48	0.65
High Income WB	343329	4.73	3.08	6.60	3.79	2.44	5.33	0.70	0.47	0.95	0.47
OECD	309294	4.74	3.12	6.58	3.85	2.50	5.39	0.66	0.46	0.89	0.47
EU	245055	4.13	2.61	5.87	3.35	2.08	4.81	0.59	0.40	0.81	0.44
ECA	27131	3.92	2.56	5.40	2.55	1.56	3.62	1.16	0.86	1.49	0.47
EAP	28742	6.74	4.58	8.95	4.64	3.08	6.25	1.80	1.25	2.35	0.51
Latin	29029	15.55	13.16	18.13	9.07	7.14	11.15	5.96	5.58	6.37	0.73
Africa	18539	9.19	8.00	10.40	5.24	4.19	6.31	3.43	3.46	3.41	0.77

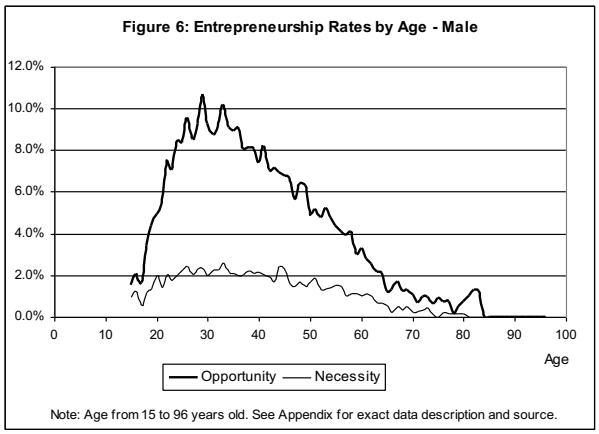
Table 1: Entrepreneurship Rate by Country

Figure 3 shows that women are less likely to be entrepreneurs than their male counterparts irrespective of age. The entrepreneurship rate attains it maximum between the ages of 25 and 35 years old, for both men and women. The average age at which females and males become entrepreneurs is around 38 year



Figures 5 and 6 display the age distribution of female and male entrepreneurs by motive. For both sexes and at all ages the opportunity motive is more prevalent than necessity. Women have lower rates but the rates of entrepreneurship by need, for females and males, are much closer than their equivalent for opportunity.





We now sharpen our question and try to answer whether female and male rates of entrepreneurial ctivity are different for a number of given characteristics. Our aim is to compute entrepreneurial rates by gender, for different ages groups, work status, education and income levels, social networks, etcetera. In Table 2 we present these different entrepreneurship rates and test whether the differences between females and males are statistically significant using the difference in means test. We reject the null hypothesis of equality of the female and male TEA and TEA OPP rates, at the 1% confidence levels, for most cases. In the case of entrepreneurial activity by need - TEA NEC - we can not reject the null hypothesis of equality for female and males who work at home, for individuals with same skills, or for countries that are classified as low or mid low income by the World Bank, or African countries in general [17]. Taking these results at face value, the only sensible policies that would raise female entrepreneurship rates to the levels of their male counterparts would be to generalize access to specific

	TEA			TEA OPP			TEA NEC		
	Mean Fem=1	Mean Male=1	St.Erro of Diff r	Mean Fem=1	Mean Male=1	St.Error of Diff	Mean Fem=1	Mean Male=1	St.Error of Diff
Age 14-20	0.0279	0.0512	0.0021***	0.0189	0.0355	0.0018***	0.0082	0.0135	0.0011***
Age 21-25	0.0520	0.0964	0.0027***	0.0357	0.0737	0.0023***	0.0139	0.0192	0.0013***
Age 26-35	0.0656	0.1216	0.0020***	0.0465	0.0933	0.0018***	0.0163	0.0225	0.0010***
Age 36-45	0.0553	0.1018	0.0018***	0.0390	0.0767	0.0016***	0.0136	0.0208	0.0009***
Age 46-55	0.0393	0.0734	0.0017***	0.0268	0.0542	0.0014***	0.0103	0.0155	0.0008***
Age 56-65	0.0196	0.0429	0.0014***	0.0138	0.0300	0.0012***	0.0046	0.0101	0.0007***
Age old 65	0.0062	0.0157	0.0010***	0.0041	0.0113	0.0008***	0.0017	0.0031	0.0004***
Working	0.0611	0.1009	0.0011***	0.0447	0.0774	0.0010***	0.0134	0.0190	0.0005***
Retired	0.0069	0.0155	0.0010***	0.0042	0.0108	0.0009***	0.0020	0.0044	0.0006***
At Home	0.0167	0.0370	0.0055***	0.0098	0.0295	0.0049***	0.0061	0.0051	0.0021
Student	0.0148	0.0307	0.0021***	0.0113	0.0235	0.0018***	0.0029	0.0055	0.0009***
Not Working	0.0258	0.0408	0.0014***	0.0152	0.0252	0.0011***	0.0095	0.0143	0.0009***
Low Income	0.0337	0.0622	0.0013***	0.0202	0.0403	0.0011***	0.0119	0.0192	0.0008***
Middle Income.	0.0415	0.0733	0.0014***	0.0298	0.0553	0.0012***	0.0097	0.0149	0.0007***
Up Income	0.0568	0.1022	0.0018***	0.0460	0.0853	0.0017***	0.0079	0.0123	0.0007***
High School	0.0341	0.0710	0.0012***	0.0242	0.0538	0.0011***	0.0081	0.0142	0.0006***
College	0.0499	0.0950	0.0017***	0.0396	0.0768	0.0015***	0.0076	0.0130	0.0007***
Graduate	0.0598	0.1049	0.0030***	0.0490	0.0892	0.0028***	0.0082	0.0115	0.0011***
Knows Entrepreneur	0.0993	0.1495	0.0019***	0.0721	0.1147	0.0016***	0.0226	0.0276	0.0009***
Has Skills	0.1206	0.1542	0.0018***	0.0862	0.1172	0.0016***	0.0289	0.0299	0.0009

Fear of failure	0.0334	0.0594	0.0013***	0.0207	0.0403	0.0010***	0.0112	0.0163	0.0007***
Low Income WB	0.1635	0.2217	0.0088***	0.0805	0.1258	0.0068***	0.0766	0.0837	0.0060
Mid Low Inc. WB	0.1587	0.2071	0.0074***	0.1041	0.1473	0.0064***	0.0494	0.0559	0.0043
Up Mid Income WB	0.0679	0.1050	0.0022***	0.0365	0.0649	0.0017***	0.0284	0.0348	0.0014***
High Income WB	0.0308	0.066	0.0007***	0.0244	0.0533	0.0007***	0.0047	0.0095	0.0003***
OECD	0.0312	0.0658	0.0008***	0.0250	0.0539	0.0007***	0.0046	0.0089	0.0003***
EU	0.0261	0.0587	0.0008***	0.0208	0.0481	0.0007***	0.0040	0.0081	0.0003***
ECA	0.0256	0.0540	0.0024***	0.0156	0.0362	0.0019***	0.0086	0.0149	0.0013***
EAP	0.0458	0.0895	0.0030***	0.0308	0.0625	0.0025***	0.0125	0.0235	0.0016***
Latin America	0.1316	0.1813	0.0043***	0.0714	0.1115	0.0034***	0.0558	0.0637	0.0028***
Africa	0.0800	0.1040	0.0042***	0.0419	0.0631	0.0033***	0.0346	0.0341	0.0027

Notes: Difference in means statististically different from zero at 1%(***). TEA= Total Entrepreneurship Rate, TEA OPP= Entrepreneurship Rate by Opportunity and TEA NEC = Entrepreneurship Rate by Necessity. ECA = Europe and Central Asia. EAP = East Asia and Pacific. See Appendix for exact definition of the variables.

Table 2: Are Female Entrepreneurship Rate Different than Male?

2.2. Are Female and Male Entrepreneurs Different

In Table 3 we try to answer a different but key question. Instead of comparing entrepreneurial rates across gender, we compare the characteristics of female and male entrepreneurs and ask: are they different? We test whether those differences are statistically significant using difference in means test and the 1% confidence level. Table 3 shows that the average age of female and male entrepreneurs is very similar, at 38 years of age. Men that have a job have 8% higher probability of becoming entrepreneurs than women, 6% higher in the case of entrepreneurship by opportunity and 13% higher in the case of entrepreneurship by need. 5,2 % of women at home are entrepreneurs, compared to only 0,3% of men, and these numbers are similar for entrepreneurship by opportunity. Interestingly, 7.4% of women at home are entrepreneurs by need, compared with a paltry 0.2% for men [18]. Among the individuals not working at the time of the interview, 10% of the females are entrepreneurs, compared to 7.5% of males. 1.5% of male students are entrepreneurs, which compares to 2% of female students, and this is true for entrepreneurship by need as well as by necessity. 22.6% of female individuals who report their income in the lowest 33rd income percentile of the income distribution are entrepreneurs, as compared to 18% for males. The difference regarding entrepreneurs by need is even higher: at 31% for females, compared to 27% for males. The difference in means in the case of middle income is not statistically significant but it is in the case of upper income: 29.5% of males are entrepreneurs compared to 23% in the case of female. In terms of education there are almost no differences in gender probabilities of becoming an entrepreneur up to the college degree stage, when there are more women entrepreneurs [19]. Finally, it is more frequent that male entrepreneurs know someone who has started a business in the recent past [20]. The variable “skills” is also more relevant in the case of men: 84% of male entrepreneurs say they think they have the knowledge, skills and experience to start a new business, compared to 78% for females. This is consistent with the fear of failure results: 23% of female entrepreneurs compared to 19% of male entrepreneurs say that fear of failing can prevent them to start a new business [21].

	TEA			TEA OPP			TEA NEC		
	Mean Fem=1	Mean Male=1	St.Error of Diff	Mean Fem=1	Mean Male=1	St.Error of Diff	Mean Fem=1	Mean Male=1	St.Error of Diff
Age	38.144	37.879	0.1594*	38.109	37.697	0.1869**	37.874	38.100	0.3349
Work	0.7220	0.8096	0.0056***	0.7587	0.8292	0.0063***	0.6248	0.7464	0.0125***
Retir	0.0166	0.0191	0.0017	0.0146	0.0177	0.0019	0.0185	0.0262	0.0039*
Home	0.0519	0.0028	0.0023***	0.0437	0.0029	0.0026***	0.0742	0.0019	0.0054***
Stud	0.0153	0.0196	0.0017***	0.0167	0.0200	0.0020	0.0118	0.0173	0.0032*
Nwork	0.1039	0.0751	0.0038***	0.0875	0.0618	0.0041***	0.1505	0.1287	0.0094**

Lowinc	0.2262	0.1819	0.0053***	0.1949	0.1573	0.0059***	0.3149	0.2749	0.0123***
Midinc	0.2521	0.2514	0.0057	0.2600	0.2536	0.0067	0.2336	0.2505	0.0116
Upinc	0.2319	0.2952	0.0057***	0.2700	0.3290	0.0070***	0.1269	0.1743	0.0095***
Lowinwb	0.0714	0.0558	0.0032***	0.0504	0.0423	0.0033**	0.1320	0.1031	0.0088***
Midloiwb	0.0912	0.0701	0.0036***	0.0858	0.0666	0.0042***	0.1121	0.0926	0.0082**
Upmidiwb	0.2384	0.2036	0.0054***	0.1836	0.1681	0.0059***	0.3938	0.3305	0.0130***
Highiwb	0.5990	0.6705	0.0063***	0.6802	0.7230	0.0071***	0.3621	0.4739	0.0132***
Edsec	0.2749	0.2860	0.0058*	0.2800	0.2896	0.0069	0.2589	0.2792	0.0120*
Edpsec	0.2523	0.2704	0.0057***	0.2873	0.2920	0.0070	0.1522	0.1805	0.0100***
Edgra	0.1050	0.1073	0.0040	0.1234	0.1218	0.0051	0.0565	0.0574	0.0063
Know	0.5789	0.6666	0.0063***	0.6030	0.6834	0.0074***	0.5198	0.6029	0.0134***
Skills	0.7873	0.8481	0.0051***	0.8069	0.8612	0.0058***	0.7441	0.8047	0.0113***
Fear	0.2337	0.1920	0.0054***	0.2076	0.1740	0.0061***	0.3082	0.2579	0.0122***

Notes: Difference in means statististically different from zero at 1%(***) , 5% (**) and 10% (*). TEA= Total Entrepreneurship Rate, TEA OPP= Entrepreneurship Rate by Opportunity and TEA NEC= Entrepreneurship Rate by Necessity. See Appendix for the exact definition of the variables.

Table 3: Are Women Entrepreneurs Different?

In sum, results in Table 3 show that female entrepreneurs are different as to whether they work – less do -, are at home – more do-, study – less do-, and whether they do not have a job – consistently, more female entrepreneurs are in this category. In addition, more female entrepreneurs are low income, when compared to males, and less are high income. No difference as to the gender incidence of entrepreneurship for middle income. Interestingly, using the income classification for countries, again women entrepreneurs are more frequent that their male counterparts in low to upper middle-income countries and less so in high income countries. Also, female entrepreneurs are less connected to networks of entrepreneurs and are more fearful of being successful.

3. Conclusion

This paper examines total entrepreneurship rates, entrepreneurship driven by opportunity and by need. It is found that indeed entrepreneurial activity rates are statistically and significantly lower for women in all categorical groups – by age interval, education, work status, network access, etc. –, except, in the case of entrepreneurship by need and the case of persons working at home, with specific entrepreneurial skills and that live in a middle or low-income country. We then estimate the differences in the personal characteristics of entrepreneurs across gender and find that female entrepreneurs are slightly older, more frequently at home or not working, lower income, lower educated, and with less access to specific skills than their male counterparts. Results for entrepreneurship by opportunity and by necessity confirm the larger importance of specific skills for women creating new businesses. Combining the mean differences in male and female entrepreneurs´ and the how they impact entrepreneurship rates, the main policy implication of our paper is that creating business networks accessible to females and imparting the specific business skills associated with entrepreneurship may be the most potent levers to increase female and total entrepreneurship across countries.

References

1. Acs, Z. J., Desai, S., & Klapper, L. F. (2008). What does "entrepreneurship" data really show?. Small Business Economics, 31, 265-281.
2. Alesina, A. F., Lotti, F., & Mistrulli, P. E. (2013). Do women pay more for credit? Evidence from Italy. Journal of the European Economic Association, 11(suppl_1), 45-66.
3. Alfaro, L., & Charlton, A. H. G. (2007). International financial integration and entrepreneurial firm dynamics. Division of Research, Harvard Business School.
4. Ardagna, S., & Lusardi, A. (2008). Explaining international differences in entrepreneurship: The role of individual characteristics and regulatory constraints (No. w14012). National Bureau of Economic Research.
5. Bayoumi, T., Laxton, D., & Pesenti, P. A. (2004). Benefits and spillovers of greater competition in Europe: a macroeconomic assesment.
6. Hamilton, B. H. (2000). Does entrepreneurship pay? An empirical analysis of the returns to self-employment. Journal of Political economy, 108(3), 604-631.
7. Bertrand, M., & Kramarz, F. (2002). Does entry regulation hinder job creation? Evidence from the French retail industry. the quarterly journal of economics, 117(4), 1369-1413.
8. Blanchflower, D. G. (2004). Self-employment: More may not be better.
9. Blanchflower, D. G. (2000). Self-employment in OECD countries. Labour economics, 7(5), 471-505.
10. Blanchflower, D. G., & Oswald, A. J. (1998). What makes an entrepreneur?. Journal of labor Economics, 16(1), 26-60.
11. Blanchflower, D. G., Oswald, A., & Stutzer, A. (2001). Latent entrepreneurship across nations. European Economic Review, 45(4-6), 680-691.
12. Blanchflower, D. G., & Oswald, A. J. (1998). What makes an entrepreneur?. Journal of labor Economics, 16(1), 26-60.
13. Blanchard, O., & Wolfers, J. (2000). The role of shocks and institutions in the rise of European unemployment: the

aggregate evidence. The economic journal, 110(462), 1-33.
14. Bowen, D. D., & Hisrich, R. D. (1986). The female entrepreneur: A career development perspective. Academy of management review, 11(2), 393-407.
15. Llussá, F. (2023). Determinants of entrepreneurship: are women different? Determinantes do empreendedorismo: são as mulheres diferentes?. Brazilian Journal of Business, 5(1), 69-92.
16. Ciccone, A., & Papaioannou, E. (2006). Red tape and delayed entry.
17. Cole, A. H. (1942). Entrepreneurship as an Area of Research. The Journal of Economic History, 2(S1), 118-126.
18. Cromie, Stanley (1987). "Motivations of Aspiring Male and Female Entrepreneurs". Journal of Occupational Behaviour, Vol. 8, No. 3, pp. 251-261.
19. Desai, M. A., Gompers, P., & Lerner, J. (2003). Institutions, capital constraints and entrepreneurial firm dynamics: Evidence from Europe.
20. Djankov, S., Ganser, T., McLiesh, C., Ramalho, R., & Shleifer, A. (2010). The effect of corporate taxes on investment and entrepreneurship. American Economic Journal: Macroeconomics, 2(3), 31-64.
21. Djankov, S., Qian, Y., Roland, G., & Zhuravskaya, E. (2006). Entrepreneurship in brazil, china, and russia. Center for Economic and Financial Research (CEFIR) Working Papers w0066, Moscow.
22. Djankov, S., Qian, Y., Roland, G., & Zhuravskaya, E. (2006). Entrepreneurship in China and Russia compared. Journal of the European Economic Association, 4(2-3), 352-365.
23. Djankov, S., Miguel, E., Qian, Y., Roland, G., & Zhuravskaya, E. (2005). Who are Russia's entrepreneurs?. Journal of the European Economic Association, 3(2-3), 587-597.
24. Djankov, S., La Porta, R., Lopez-de-Silanes, F., & Shleifer, A. (2002). The regulation of entry. The quarterly Journal of economics, 117(1), 1-37.
25. Edwards, L. N., & Field-Hendrey, E. (2002). Home-based work and women's labor force decisions. Journal of labor Economics, 20(1), 170-200.
26. Evans, D. S., & Jovanovic, B. (1989). An estimated model of entrepreneurial choice under liquidity constraints. Journal of political economy, 97(4), 808-827.
27. Evans, D. S., & Leighton, L. S. (1990). Some empirical aspects of entrepreneurship. The economics of small firms, 79-99.
28. Fairlie, R. W., & Robb, A. M. (2007). Why are black-owned businesses less successful than white-owned businesses? The role of families, inheritances, and business human capital. Journal of Labor Economics, 25(2), 289-323.
29. Garcia, N. Chin, (2005), "Gobal Entrepreneurship Monitor: Data Collection Design and Implementation 1998-2003," Small Business Economics, vol. 24, pp. 205-231.
30. Gentry, W. M., & Hubbard, R. G. (2000). Tax policy and entrepreneurial entry. American Economic Review, 90(2), 283-287.
31. Guiso, L., & Schivardi, F. (2011). What determines entrepreneurial clusters?. Journal of the european economic association, 9(1), 61-86.
32. Guiso L., P. Sapienza, L. Zingales, (2004), "Does Local Financial Development Matter?", Quarterly Journal of Economics, August, pp. 929-969.
33. Harbury, C. D. and D. M. W. N. Hitchens (1977). "Women, Wealth and Inheritance", The Economic Journal, Vol. 87, No. 345, pp. 124-131.
34. Hundley, Greg (2000). "Male/Female Earnings Differences in Self-Employment: The Effects of Marriage, Children, and the Household Division of Labor".Industrial and Labor Relations Review, Vol. 54, No. 1, pp. 95-114.
35. Hurst E., A. Lusardi, (2004), "Liquidity Constraints, Household Wealth, and Entrepreneurship," Journal of Political Economy, April 2004, vol. 112(2), pp. 319-347.
36. Hurst E., A. Lusardi, (2008), "Liquidity Constraints and Entrepreneurship. Household Wealth, Parental Wealth, and the Transition In and Out of Entrepreneurship", forthcoming in "Overcoming Barriers to Entrepreneurship," Rowman and Littlefield.
37. Ibarra, Herminia (1993) "Personal Networks of Women and Minorities in Management: A Conceptual Framework." The Academy of Management Review, Vol. 18, No. 1, pp. 56-87.
38. Kalleberg, Arne L. and Kevin T. Leicht (1991). "Gender and Organizational Performance: Determinants of Small Business Survival and Success" .The Academy of Management Journal, Vol. 34, No. 1 pp. 136-161.
39. Khan, B. Zorina (1996). "Married Women's Property Laws and Female Commercial Activity: Evidence from United States Patent Records, 1790-1895". The Journal of Economic History, Vol. 56, No. 2, Papers Presented at the Fifty-Fifth Annual Meeting of the Economic History Association, pp. 356-388.
40. Kehrer, Barbara H. (1976). "Factors Affecting the Incomes of Men and Women Physicians: An Exploratory Analysis". The Journal of Human Resources, Vol. 11, No. 4, pp. 526-545.
41. Klapper L., L. Laeven, and R. Rajan, (2006) ,"Entry Regulation as a Barrier to Entrepreneurship," Journal of Financial Economics (forthcoming).
42. Kuhn, Peter J. and Herb J. Schuetze (2001). "Self-Employment Dynamics and Self-Employment Trends: A Study of Canadian Men and Women, 1982-1998". The Canadian Journal of Economics / Revue canadienne d'Economique, Vol. 34, No. 3 pp. 760-784.
43. La Porta R., F. Lopez-de-Silanes, A. Shleifer, R.W. Vishny, (2000), "Investor Protection and Corporate Governance," Journal of Financial Economics, vol. 58, pp. 1-25.
44. Niederle, Muriel, and Alexandra H. Yestrumskas (2008), "Gender Differences in Seeking Challenges: The Role of Institutions", NBER Working Paper 13922.
45. Shane, Scott.(2000) "Prior Knowledge and the Discovery of Entrepreneurial Opportunities". Organization Science, Vol. 11