

Opportunity vs Necessity: Understanding the Heterogeneity of Female Microentrepreneurs

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Research Questions

- We analyze the heterogeneity of female microentrepreneurs in urban Mexico by comparing "opportunity" vs "necessity" ones
 - "Opportunity": voluntarily choose to be so
 - "Necessity": cannot find a salaried job
- Do some characteristics consistently differentiate "opportunity" vs "necessity" entrepreneurs? We focus on:
 - Business performance and management practices
 - Cognitive and non-cognitive skills of the entrepreneur
- Could *opportunity* besides these characteristics explain performance?

Why Opportunity vs Necessity?

- More than 7 million of microentrepreneurs according to ENAMIN
- Debate: Whether being a microentrepreneur in developing countries is:
 - Voluntary and the first step to become larger, successful entrepreneur OR
 - Involuntary while queueing for a salaried job
- For Mexico, Bosch and Maloney (2007) find transitions from formal salaried employment to self-employment are pro-cyclical, thus providing some support to the first view.
- Under the first view, support programs for entrepreneurs could help them grow and generate jobs.

Contribution of this Paper

- We exploit a novel dataset of female entrepreneurs in Mexico to show that:
 - Both "opportunity" and "necessity" entrepreneurs coexist in the same market
 - Some observable characteristics separate both types
 - Could use them to target support to high-potential entrepreneurs
 - Program impacts might depend on characteristics of the entrepreneur (Calderon et al. 2013, De Mel et al. 2012, Fafchamps et al. 2014)
 - State GDP growth has a positive effect on becoming an "opportunity" entrepreneur
 - Women that become "opportunity" entrepreneurs induced by economic growth manage their businesses better than "necessity" ones

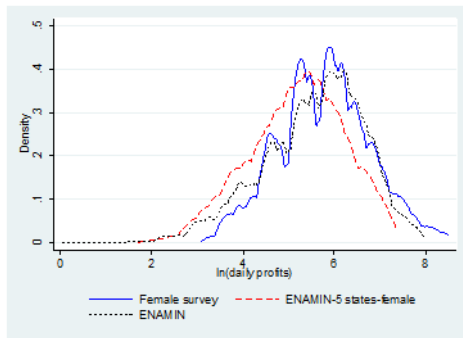
Data- Sample and Description

- Baseline survey conducted in 2014 in 8 urban areas in Mexico.
 - Areas: Aguascalientes, Dolores Hidalgo, Irapuato, León, Mexico City, Querétaro, San Juan del Río and Toluca
 - Part of a RCT to evaluate "Mujeres Moviendo México" a large business training program by Crea (Mexican NGO)
 - Sample of 10,275 female owners of firms with 5 or fewer employees
- The survey was conducted at the establishment and has information on:
 - Business characteristics and performance
 - Management practices
 - Cognitive skills and non-cognitive skills of the entrepreneur
 - Sociodemographics

Brief Descriptives of our Sample

- We exclude the top 1% in daily profits.
- Some mean characteristics:
 - Age: 45 years old
 - Schooling: 8.6 (some secondary education)
 - Poor: 14%
 - Capital: 1166 USD (17,500 MXP). Median=430 USD (6,500 MXP)
 - Age of business: 107 months (9 years). Median=60 months (5 years); 25% a year or less
 - Self-employed: 75% (no employees)
 - Economic sector: Retail (62%); services (33%); production (5%)
 - Daily profits: 270 MXP (4 MW). Median=150 MXP (2.3 MW); Q1=80 MXP; Q3=300 MXP. Max=2,800 MXP
 - Reason for opening business: Opportunity (18%), Necessity (69%), Family (7%), Other (6%)

Comparison with ENAMIN (INEGI)



Variables for Analysis

- Business performance measures: Self-reported weekly profits.
- Business practices: Composite business practice (CBP) score.
 - Measures marketing, stock and financial planning, and records-keeping (Fafchamps and Woodruff, 2014)
- Business characteristics: Age (months) and monthly salary expenses
- Entrepreneur characteristics: Age (years)
- Cognitive skills: Raven and digit span tests standardized scores, years of schooling
- Non-cognitive skills (13): " Big five" (agreeableness, conscientiousness, extraversion, intellect/ imagination and neuroticism), impulsiveness, locus of control, willingness to take risks, self-confidence, self-efficacy, optimism, self-satisfaction and trust. Standardized scores for each.

Opportunity vs Necessity Classification

- An "opportunity" entrepreneur opened her business either because:
 - She wanted to become independent OR
 - She had money and found a good opportunity OR
 - She wanted to work in her profession or develop her career profile
- A "necessity" entrepreneur opened her business because:
 - She could not find a suitable job and needed a source of income
- We exclude the categories of family tradition and other reasons from the analysis.
- Our final sample has 8,949 entrepreneurs (21% opportunity and 79% necessity).

Steps in the Empirical Analysis

- Mean differences between opportunity and necessity entrepreneurs
- Discriminant analysis
 - Analyze if observable traits are good predictors
- OLS regression
 - Other factors, besides personal or business characteristics, that could explain the difference between these two types of entrepreneurs
- IV regression
 - Exploring other factors that could explain performance through opportunity

Mean difference Opportunity vs Necessity (full sample)

	Opportunity group mean	Necessity group mean	Mean difference	t-test p-value
Measures of performance				
Weekly profits (self reported)	1937.635	1349.177	588.4576***	1.26e-12
Weekly sales (self reported)	4507.258	3540.586	966.6726***	1.31e-07
Weekly sales/workers	4395.353	4302.254	93.09963	.7776329
Composite Business Practice score (standardized)	.3060325	-.0842768	.3903093***	1.29e-51
Business characteristics				
Age of entrepreneur	41.81658	45.92807	-4.111494***	4.77e-31
Age of business in months	90.59086	103.6411	-13.05026***	.0000466
Proportion with one worker or more	.3185	.2278	.0907***	.0000
Costs: monthly salary expenses	1025.357	498.751	526.6064***	5.84e-12
Cognitive skills				
Total score of raven test (standardized)	.0827833	-.0211648	.1039482***	.0000841
Total score of digit span test (standardized)	.1459293	-.0328984	.1788277***	5.72e-12
Years of schooling	9.789416	8.251668	1.537748***	1.31e-45
Non-cognitive skills				
Extraversion (standardized)	-.0365413	.0155396	-.0520809**	.0430861
Agreeableness (standardized)	-.0093652	.0075027	-.0168679	.5074504
Conscientiousness (standardized)	-.069074	.0121551	-.0812292***	.0015348
Neuroticism (standardized)	-.0246642	.0130341	-.0376982	.1432771
Intellect/imagination (standardized)	.0074094	-.0046432	.0120526	.635746
Self efficacy (standardized)	-.0957561	.0110521	-.1068082***	.0000364
Locus of control (standardized)	.0954217	-.0202922	.1157139***	8.77e-06
Impulsiveness (standardized)	.0480202	-.0170598	.06508**	.0116913
Self confidence (standardized)	.1074716	-.0390423	.1465139***	1.49e-08
Attitude towards risk (standardized)	.0975181	-.0298163	.1273345***	1.44e-06
Self satisfaction (standardized)	.1163573	-.0443902	.1607475***	7.42e-10
Optimism (standardized)	.138387	-.0400507	.1784377***	1.21e-11
Attitude towards trust (standardized)	.0137271	-.0011845	.0149116	.5669594
Attitude towards growth (standardized)	.0621355	-.0119533	.0740888***	.0046092
Observations	8949			

p-values from mean difference t-test: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Discriminant Analysis

Variable set used in classification	Opportunity correctly classified (%)	Necessity correctly classified (%)	Classified as opportunity (%)	Classified as necessity (%)
Full sample				
Measures of performance only (1)	52.37	62.85	40.37	59.63
Business characteristics only (2)	59.18	56.19	46.48	53.52
Cognitive skills only (3)	59.06	56.45	47.17	52.83
Non-cognitive skills only (4)	57.13	53.53	48.78	51.22
All variables combined	60	62.75	42.06	57.94

OLS regressions

VARIABLES	(1)	(2)
Opportunity	0.271*** (0.033)	0.267*** (0.038)
Age of business in months	0.000** (0.000)	0.001*** (0.000)
Age of entrepreneur	-0.003*** (0.001)	-0.009*** (0.001)
Raven test score (standarized)	0.008 (0.014)	0.036** (0.016)
Digit span test score (standarized)	0.066*** (0.015)	0.107*** (0.018)
Years of schooling	0.058*** (0.004)	0.017*** (0.005)
Locus of control (standarized)	-0.004 (0.013)	-0.023 (0.015)
Attitude towards risk (standarized)	0.124*** (0.014)	0.071*** (0.017)
Self satisfaction (standarized)	0.094*** (0.015)	0.141*** (0.020)
Optimism (standarized)	-0.017 (0.015)	0.052*** (0.019)
Constant	-0.443*** (0.069)	6.741*** (0.087)
Observations	5,383	4,549
R-squared	0.143	0.105

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

IV Regression

- The Instrumental Variable is the GDP growth rate per year observed in the state and in the year when the microentrepreneur started her business.

First Stage:

$$\begin{aligned} \text{opportunity}_i &= \alpha_1 + \beta_1 \text{GDPgrowth}_{t_{0s}} + \gamma_1 \text{BusinessPract}_i \\ &+ \gamma_2 \text{CognitiveSkills}_i + \gamma_3 \text{NonCognitiveSkills}_i \\ &+ \gamma_4 \text{OtherMicroEntrepreneurCharact}_i + \gamma_5 \text{BusinessCharact}_i + \epsilon_i \end{aligned}$$

Second Stage:

$$\begin{aligned} \text{performance}_i &= \alpha_2 + \beta_2 \text{opportunity}_i + \theta_1 \text{BusinessPract}_i \\ &+ \theta_2 \text{CognitiveSkills}_i + \theta_3 \text{NonCognitiveSkills}_i \\ &+ \theta_4 \text{OtherMicroEntrepreneurCharact}_i + \theta_5 \text{BusinessCharact}_i + \psi_i \end{aligned}$$

i is individual, and $\text{GDPgrowth}_{t_{0s}}$ is the GDP growth per year observed in the state and in the year when the micro-entrepreneur started her business.

IV Regressions

VARIABLES	(1) CBP score	(2) Weekly profits
Opportunity	2.636*	2.685
	(1.437)	(1.799)
Age of business in months	0.000*	0.001***
	(0.000)	(0.000)
Age of entrepreneur	0.003	-0.002
	(0.004)	(0.005)
Raven test score (standarized)	0.035	0.062**
	(0.026)	(0.029)
Digit span test score (standarized)	0.051**	0.108***
	(0.023)	(0.025)
Years of schooling	0.032*	-0.009
	(0.017)	(0.021)
Locus of control (standarized)	-0.031	-0.056*
	(0.025)	(0.032)
Attitude towards risk (standarized)	0.129***	0.075***
	(0.020)	(0.023)
Self satisfaction (standarized)	0.064**	0.133***
	(0.029)	(0.026)
Optimism (standarized)	-0.037	0.035
	(0.024)	(0.029)
Constant	-1.016***	6.162***
	(0.364)	(0.447)
F-test	17.37	12.96
Observations	5,383	4,549

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

IV Regressions: Robustness tests (Restricting to business opening up to 2010)

VARIABLES	(1) CBP score
Opportunity	3.512* (1.822)
Age of business in months	0.001 (0.001)
Age of entrepreneur	0.005 (0.006)
Raven test score (standarized)	0.059 (0.041)
Digit span test score (standarized)	0.031 (0.039)
Years of schooling	0.018 (0.021)
Locus of control (standarized)	-0.043 (0.031)
Attitude towards risk (standarized)	0.157*** (0.033)
Self satisfaction (standarized)	0.043 (0.043)
Optimism (standarized)	-0.047 (0.036)
Constant	-1.198** (0.516)
F-test	10.86
Observations	3,242

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

Conclusions

- Our results suggest that a single view –either *optimistic* or *pessimistic*- cannot be applied to female microentrepreneurs in Mexico
- Both *opportunity* and *necessity* entrepreneurs coexist in the data
- Both types are indeed different *species*, separated by characteristics, mainly by cognitive skills
- Our classification can improve approximately 20 percent vs a random draw
 - A set of such characteristics could be use to improve targeting business support programs and focus resources on high potential entrepreneurs
- Other characteristics could explain *opportunity entrepreneurs* besides the observables used in this analysis
- *Opportunity* besides the observables considered in this paper explain a large part of performance

Appendix

Table 1: Mean diff. Opportunity vs Necessity's top 25% of daily profits

	Opportunity group mean	Necessity group mean	Mean difference	p-value
Measures of performance				
Weekly profits (self reported)	1937.635	3398.169	-1460.534***	2.52e-20
Weekly sales (self reported)	4507.258	8898.376	-4391.117***	7.84e-36
Weekly sales/workers	4395.353	7558.159	-3162.806***	9.17e-11
Composite Business Practice score (standardized)	.3060325	.2559537	.0500788	.2083584
Business characteristics				
Age of entrepreneur	41.81658	43.3497	-1.533121***	.0013669
Age of business in months	90.59086	111.8615	-21.27061***	1.01e-06
Proportion with one worker or more	.3185935	.3748925	-.056299***	0.0015
Costs:monthly salary expenses	1025.357	1451.622	-426.2651***	.0036929
Cognitive skills				
Total score of raven test (standardized)	.0827833	.1619808	-.0791975**	.0349545
Total score digit span test (standardized)	.1459293	.2135321	-.0676028*	.0710074
Years of schooling	9.789416	9.161713	.627703***	.000032
Non-cognitive skills				
Extraversion (standardized)	-.0365413	.0115596	-.0481008	.1928893
Agreeableness (standardized)	-.0093652	.0532649	-.0626301*	.0945029
Conscientiousness (standardized)	-.069074	-.0247944	-.0442796	.2394807
Neuroticism (standardized)	-.0246642	-.014709	-.0099552	.7927225
Intellect/imagination (standardized)	.0074094	.0346711	-.0272616	.4612176
Self efficacy (standardized)	-.0957561	-.0768504	-.0189057	.5912536
Locus of control (standardized)	.0954217	-.0688499	.1642716***	.0000123
Impulsiveness (standardized)	.0480202	.1210343	-.0730141*	.053711
Self confidence (standardized)	.1074716	.0689652	.0385064	.2954655
Attitude towards risk (standardized)	.0975181	.2431774	-.1456593***	.0000417
Self satisfaction (standardized)	.1163573	.253991	-.1376337***	.0001128
Optimism (standardized)	.138387	.1728365	-.0344495	.3096182
Attitude towards trust (standardized)	.0137271	.0287478	-.0150207	.6870126

Mean difference Opportunity and Necessity vs Necessity incorrectly classified

	Mean Opportunity	Mean Necessity	Mean Necessity incorrectly class.	Opp - Nec. incorrect	Nec - Nec. incorrect
Measures of performance					
Weekly profits (self reported)	1937.64	1349.18	1695.27	242.36**	-476.57***
Weekly sales (self reported)	4507.26	3540.59	4514.88	-7.62	-1335.31***
Weekly sales/workers	-155.58	4302.25	4550.94	.7776	-305.79
CBP score (standardized)	.3060	-.0843	.6524	-.3463***	-.9997***
Business characteristics					
Age of entrepreneur	41.82	45.93	38.00	3.81***	10.76***
Age of business in months	90.59	103.64	77.86	12.73***	35.09***
Costs: monthly salary expenses	1025.36	498.75	1012.41	12.95	-741.54***
Cognitive skills					
Total score of raven test	.0828	-.0212	.1169	-.0341	-.1907
Total score digit span test	.1459	-.0329	.2606	-.1146***	-.3990***
Years of schooling	9.7894	8.2517	11.1381	-1.3487***	-3.9420***
Non-cognitive skills					
Extraversion (standardized)	-.0365	.0155	.0219	-.0698**	-.0240
Agreeableness (standardized)	-.0094	.0075	-.0872	-.0312	-.0194
Conscientiousness (standardized)	-.0691	.0121	-.0094	.0182	.1346***
Neuroticism (standardized)	-.0247	.0130	.0112	-.0152	.0304
Intellect/imagination (standardized)	.0074	-.1451	.0121	-.0038	-.0214
Self efficacy (standardized)	-.0958	.0111	.1754	.0494	.2116
Locus of control (standardized)	.0954	-.0203	.1010	-.0710**	-.2652***
Impulsiveness (standardized)	.0480	-.0170	.2225	-.0529	-.1599***
Self confidence (standardized)	.1075	-.0390	.1713	-.1150***	-.3548***
Attitude towards risk (standardized)	.0975	-.0298	.2962	-.0738**	-.2767***
Self satisfaction (standardized)	.1164	-.0444	.2612	-.1798***	-.4639***
Optimism (standardized)	.1384	-.0400	-.0131	-.1228***	-.4133***
Attitude towards trust (standardized)	.0137	-.0012	.0149	.0268	.0162
Attitude towards growth (standardized)	.0621	-.0120	.1491	-.0870***	-.2188***

p-values from mean difference t-test: * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$