



# Business knowledge or networks for female entrepreneurship?

Early experimental evidence from Peru

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# Motivation I

- Is it possible to transform a small trader/producer in a successful businesswoman?
  - In the developing world, millions of people work in their own familiar microbusinesses (MYPES) – GEM (2007)
  - Many of those families are still poor
    - Exclusion or use of opportunities (Perry, et. al., 2007)
  - Gender connotation is very relevant in entrepreneurship
    - Female labor participation has increased a lot in the last decades, but mainly in the informal sector (WB, 2010)
    - Many SMEs have low returns to capital, especially those female-owned (de Mel, McKenzie y Woodruff, 2008)
  - Thus, possibilities of business growth and sustainability are questionable
    - Contribution of this sector to poverty reduction and economic growth is uncertain

# Motivation II

- But, can we indeed teach entrepreneurship?
  - Successful entrepreneurship may be based on innate *non-transferable* abilities (intuition, persistence, leadership), **OR**
  - Teaching them good business practices may not be enough?
  - They may need more specific advice about what their problems are and what they need to do (TA)
    - Bruhn, Karlan & Schoar (2010) do find (+) profit and growth effects for SMEs in Mexico
  - They may face some extra constraints: time, commitment issues to implement innovations/adjustments that can make them more profitable, grow

# What does the literature says?

- We have seen many efforts to improve managerial skills for SMEs, and recently, many with proper IE strategies
  - However, technical problems have also complicated learning about the effects of business training (McKenzie & Woodruff, 2012)
    - Heterogeneous treatment (length, provider)
    - low take up, attrition have affected many studies, reducing statistical power.
- Still, many interventions to improve managements skills were not able to show success (Karlan & Valdivia, 2011; Bruhn & Zia, 2011)
  - Not even when complemented with capital transfers (Giné & Mansuri, 2011; Berge, et. a., 2011)

# What does the literature says? II

- Some more recent studies start showing training works when well designed (Valdivia, 2015)
  - Long enough, experienced facilitators
  - But, effects take time to materialize into revenues/profits
  - Also, low take up, high dropout of treatment is a key issue
    - Intensity conflicts with time constraints?
  - Time is also needed to implement adjustments/innovations
    - Commitments issues may play a role?
- Latest on going studies are trying to find more efficient strategies to improve managerial skills
  - Identifying growth potential
  - Adding soft skills
  - Promoting business networks: peer pressure, support?

# Research and policy questions

- Can we improve business practices and increase profitability of SMEs by offering them individual mentoring (IM) sessions with business experts that can help them diagnose their problems, identify solutions, implement adjustments/innovations?
  - On top of a short basic business training course
  - IM includes 32 hours (16 two-hour weekly sessions), sessions mostly at the business
- Can we do the same with an intervention that focuses on strengthening business networks for SME owners that can provide peer pressure and support?
  - Also on top of a short basic business training course
  - PWG includes group sessions of 7 SME owners, with a facilitator

# Description of the program

- Study associated to WLSME program
  - Key partnership: GRADE-SECTOR 3
  - Initiative was born with an experimental IE strategy, connected to current knowledge of what works to improve management skills for SMEs
- Design and delivery of intervention done by SECTOR 3
  - Two components: i) basic training (BT), ii) mentoring/support groups
  - Short BT: 16 hours of training in 4 sessions (1/3 of the ILO SIYB)
  - Mentoring/support groups: help SME owners diagnose their problems, identify solutions, implement adjustments/innovations
- Content of the support
  - Best practices on strategic planning, marketing, record-keeping (sales, purchases, inventories), management of human resources

# Description of the program II

- Two delivery strategies
  - Individual mentoring (IM) includes 32 hours (16 two-hour weekly sessions), sessions mostly at the business
  - Peer working groups (PWG) includes group sessions of 7 SME owners, with a facilitator. Participants present to the group their advances of their diagnosis, action plan, progress with implementation. Facilitator provide some technical guidance.
- For whom? (Eligibility)
  - Program targeted females running SMEs (2-30 workers) for at least one year, had finished high school
    - 4 industrial sectors: handicraft, textiles, restaurants, food processing)
  - Recruitment strategies include advertisements through different means (visits to clusters/associations, newspaper/radio ads, banks' clients, recommendation from participants from previous cohorts)
  - They had a personal interview, filled a basic information sheet and signed a LOI



# Identification strategy: an experimental design

- Random selection of beneficiaries and control group from the eligible interested population
  - 1188 female SME owners in 7 cohorts
  - Stratified by sector (4), age of the entrepreneur
- Eligible women randomly distributed in two treatment groups and one of control (reference):
  - T1 → basic training (BT) plus individual mentoring (IM)
  - T2 → BT plus peer working groups (PWG)
  - C → BT only
- Baseline and 3 follow-up surveys (6-months, 1 year and 2 years after the end of treatment)



# Estimation methods I

- Intention-to-treat (ITT) effects are estimated (ANCOVA specification)
  - Effects are w.r.t. reference group (basic training only)
- Econometrically, the following regression is estimated:

$$Y_{ij1} = a + b_1 T1_{ij} + b_2 T2_{ij} + b_3 Y_{ji0} + b_4 X_{ij0} + d_j + e_{ij}$$

$\delta_j$  industrial sectors (4)

$\beta_1$  effect of individual monitoring (IM)

$b_2$  effect of peer working groups (PWG)

- Controls include outcome at baseline and randomization stratifiers (sector, age of the women and business, experience with business training)
- Include correction for correlated errors within original training groups

# Estimation methods II

- Many indicators regarding business practices and results are analyzed
- Independent evaluation of too many related results increases the probability of false rejection of null hypothesis (Kling & Liebman, 2004)
  - The average standardized effect is used to test the treatment effects on families of outcomes: business practices, productivity, sales, associativity
  - It is also used to evaluate whether the treatment generates heterogeneous effects on each family of outcomes by different characteristics (educational level, business size, etc.)

# Hypothesis testing

$$H_0 : b_1 > 0?$$

- Can we reproduce with this intervention that IM (1/1) have a positive effect on profits, growth?

$$H_0 : b_2 > 0?$$

- Key hypothesis test. Can we also get improved outcomes with peer working groups? With a technical facilitator (1/7), but relying also on monitoring and support by peers?

$$H_0 : b_1 = b_2?$$

- Can we replace high-cost IM by strengthening networking among business peers?
- Would we have enough statistical power?

# Randomization balance: The entrepreneur

	Obs	Referenci a (i)	IM (ii)	PWG (iii)	P-value (ii)-(iii)
Age (years)	1,141	41.7 (0.520)	-0.999 (0.733)	-1.724 (0.734)**	0.0325 **
Schooling					
Up to secondary (%)	1,140	9.8 (1.462)	-1.307 (2.057)	-1.525 (2.061)	0.428
Technical high education (%)	1,140	38.4 (2.498)	-3.138 (3.514)	-1.632 (3.520)	0.435
Up to College (%)	1,140	47.1 (2.585)	4.512 (3.637)	1.986 (3.642)	0.304
Post-graduate (%)	1,140	3.9 (1.064)	0.442 (1.498)	1.173 (1.500)	0.535
Experience with training programs (last 3 years)	1,141	42.42 (2.525)	3.38 (3.556)	-0.27 (3.561)	0.614
Household size					
1-2 (%)	1,139	41.524 (2.559)	3.083 (3.603)	2.692 (3.613)	0.356
3-6 (%)	1,139	53.275 (2.573)	-2.614 (3.623)	-1.257 (3.634)	0.539
6 or more (%)	1,139	5.201 (1.076)	-0.468 (1.515)	-1.435 (1.519)	0.470
Household asset index	1,142	-0.013 (0.025)	0.013 (0.035)	0.027 (0.035)	0.571

# Randomization balance: the business

	Obs	Referenci a (i)	IM (ii)	PWG (iii)	P-value (ii)-(iii)
Business's sector					
Textiles	1142	0.376 (0.025)	-0.009 (0.035)	0.001 (0.035)	0.76
Handicrafts	1142	0.316 (0.024)	0.007 (0.034)	-0.001 (0.034)	0.81
Restaurant	1142	0.088 (0.015)	-0.004 (0.021)	0.012 (0.021)	0.43
food processing	1142	0.220 (0.021)	0.006 (0.030)	-0.013 (0.030)	0.52
Job characteristics					
dedicated exclusively to business	1,142	82.686 (1.971)	0.072 (2.777)	-3.294 (2.782)	0.504
Weekly hours worked	1,138	50.834 (1.050)	-0.300 (1.477)	1.346 (1.478)	0.684
Age of the business	1134	7.879 (0.33)	-0.444 (0.46)	-0.949 (0.461)**	0.08 *
Workers in normal month	1141	3.306 (0.21)	0.055 (0.29)	-0.094 (0.29)	0.94
Received loan last 12 months					
MFI (%)	1,142	2.092 (0.689)	-1.255 (0.971)	0.506 (0.973)	0.657
Bank (%)	1,142	19.770 (2.041)	1.976 (2.876)	2.791 (2.880)	0.340
Business asset index	1,142	0.002 (0.019)	-0.003 (0.027)	0.001 (0.027)	0.920
Revenue and profits					
Monthly revenue (USD)	990	2108.96 (383.538)	282.524 (540.587)	-80.373 (537.997)	0.83
Monthly profits (USD)	967	2101.51 (384.687)	175.394 (541.898)	-164.476 (540.762)	0.99
Business practices index	1,142	-0.013 (0.019)	0.043 (0.026)*	-0.005 (0.026)	0.403

# Take up and attrition

	Control	IM	PWG	Total
Take up (BT sessions)	90.8%	91.9%	82.1%	88.2%
Retention (monitoring/support sessions)				
At least half the sessions (%)		87.0%	68.2%	
Finish the program		74.4%	49.8%	
Attrition (C1-C5)				
Follow up 1	24.1%	18.6%	18.9%	20.5%
Follow up 2	33.1%	23.0%	23.6%	26.5%
# of obs. (C1-C7)	391	395	402	1188
# of obs. (C1-C5)	266	269	275	810



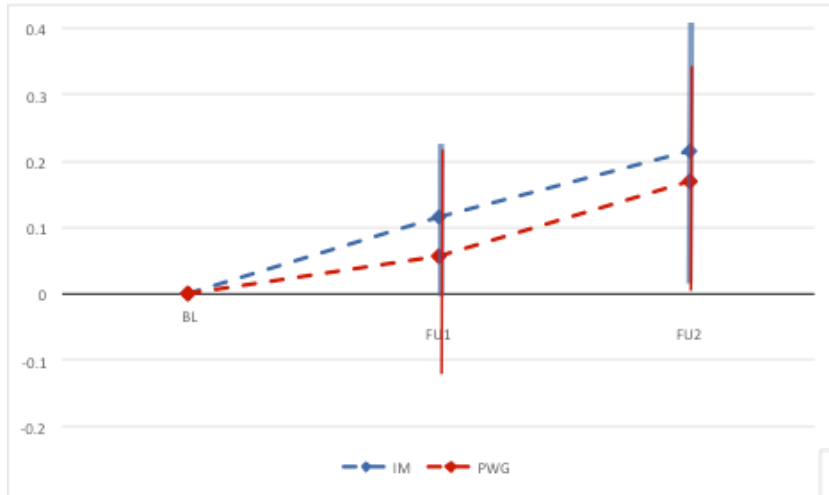
# Results: Sales and profits at FU1

	# Obs.	Control (1)	IM (2)	PWG (3)	P-value (4)=(2)-(3)
Monthly sales (log)					
Index		0	0.115 (0.069)	0.057 (0.100)	0.509
Last month	792	4.940	0.318 (0.207)	0.250 (0.315)	0.886
Excelent month	792	5.501	0.476* (0.236)	0.181 (0.309)	0.348
Normal month	792	4.940	0.171 (0.266)	0.112 (0.399)	0.881
Bad month	792	4.149	0.316 (0.225)	0.090 (0.237)	0.378
Monthly profit (log)					
Index		0	0.065 (0.077)	0.004 (0.084)	0.459
Last month	792	4.875	-0.108 (0.252)	0.156 (0.285)	0.300
Excelent month	792	5.567	0.456* (0.225)	0.087 (0.270)	0.265
Normal month	792	3.610	0.188 (0.281)	-0.221 (0.314)	0.098
Bad month	792	4.987	0.109 (0.278)	-0.064 (0.341)	0.618

# Results: Sales and profits at FU2

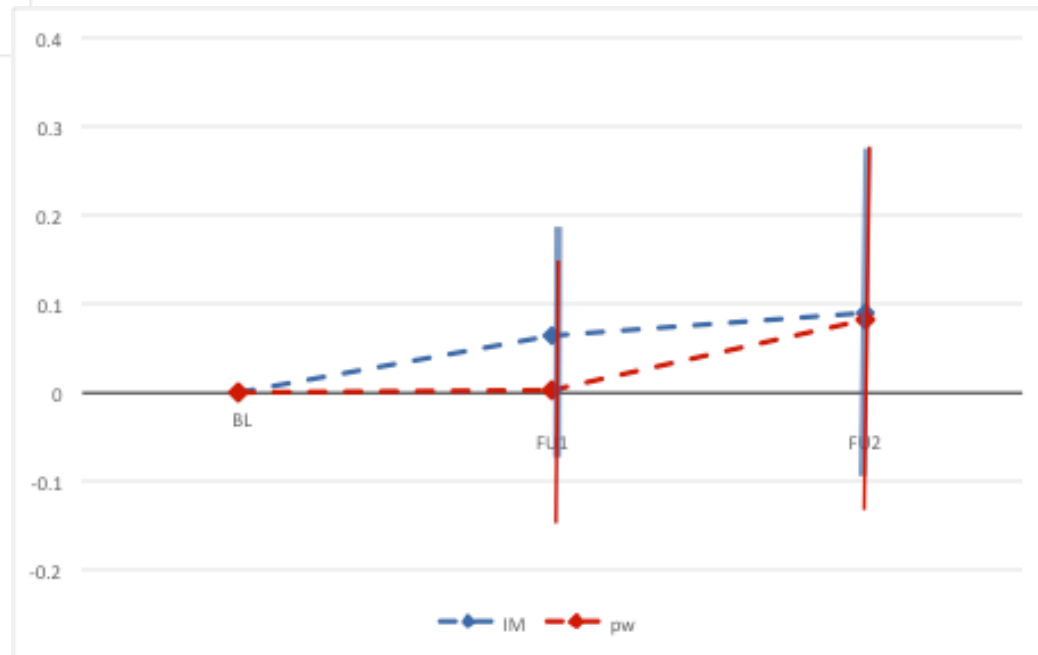
	# Obs.	Control (1)	IM (2)	PWG (3)	P-value (4)=(2)-(3)
Monthly sales (log)					
Index		0.000	0.214* (0.114)	0.169* (0.095)	0.601
Last month	796	3.964	0.718* (0.387)	0.467 (0.359)	0.330
Excelent month	796	4.621	0.791** (0.373)	0.569 (0.342)	0.348
Normal month	796	4.012	0.597** (0.291)	0.508 (0.307)	0.721
Bad month	796	3.265	0.571* (0.308)	0.696*** (0.254)	0.591
Monthly profit (log)					
Index		0.000	0.091 (0.111)	0.083 (0.119)	0.924
Last month	796	3.764	0.371 (0.382)	0.204 (0.468)	0.501
Excelent month	796	4.613	0.424 (0.373)	0.320 (0.409)	0.674
Normal month	796	2.680	0.195 (0.392)	0.315 (0.379)	0.649
Bad month	796	3.978	0.200 (0.325)	0.333 (0.405)	0.696

# A snapshot of the results so far



Sales index

profits index



# Results: Capital, labor, productivity

	# Obs.	Control (1)	FU1			FU2		
			IM (2)	PWG (3)	P-value (4)=(2)-(3)	IM (2)	PWG (3)	P-value (4)=(2)-(3)
Capital (log)	792	5.722	0.327 (0.319)	0.510* (0.273)	0.519	0.637* (0.336)	0.535* (0.278)	0.694
Employment (other than herself - log)								
Number of total workers	792	2.500	-0.427 (0.328)	-0.108 (0.393)	0.130	0.437 (0.445)	0.253 (0.267)	0.540
Number of non-family workers	792	1.932	-0.343 (0.330)	-0.120 (0.383)	0.240	0.401 (0.465)	0.204 (0.271)	0.499
Productivity residual								
Normal month	792	0.009	0.028 (0.075)	-0.067 (0.119)	0.335	0.071 (0.083)	0.065 (0.078)	0.920
Last month	792	-0.023	0.081 (0.081)	-0.018 (0.079)	0.281	0.124 (0.102)	0.049 (0.089)	0.330

# Business practices

	Individual Mentoring		Peer Work Group	
	FU1	FU2	FU1	FU2
Marketing	<p>Interactions with <u>suppliers</u> about increasing sales</p> <p>Actions to attract customers participation in social events, fairs use of social networks (website, blog, fb page, google ad)</p> <p>Use of advertising Announced in events yellow pages Magazines</p> <p>use of branding practices (logos)</p>	<p>Interactions with <u>customers</u> about increasing sales</p> <p>Actions to attract customers participation in social events, fairs use of social networks (website, blog, fb page, google ad)</p> <p>Use of advertising Announced in events yellow pages</p> <p>use of branding practices (logos)</p>	<p>use of branding practices (logos)</p>	<p>Use of advertising Announced in events</p> <p>use of branding practices (logos)</p>
Networking			Meets regularly with other business leaders	participates in trade fairs
Keeping records/using reports	<p>Purchase and sales records ad-hoc software, system</p> <p>Prepare/Check/Analyze reports Income statement Cash flow</p> <p>Inventory of products/supplies ad-hoc software, system</p> <p>prepare/use reports</p>	<p>Purchase and sales records ad-hoc software, system</p> <p>Inventory of products/supplies ad-hoc software, system</p> <p>prepare/use reports</p>	<p>Purchase and sales records ad-hoc software, system</p> <p>Inventory of products/supplies ad-hoc software, system</p> <p>prepare/use reports</p>	<p>Purchase and sales records ad-hoc software, system</p> <p>Inventory of products/supplies ad-hoc software, system</p> <p>prepare/use reports</p>

# Summary of results I:

- Take up and retention rates are relatively high
  - Women valued interventions
  - Especially for IM group
- IM sales effects are positive and robust after a year
  - It confirms there is room for growth
  - It confirms the need of extra support (beyond BT)
- PWGs also show some positive sales movement (slightly weaker) after a year
  - Not enough statistical power?
- No profits effects?
  - No room for efficiency gains?
  - Too early to tell?

# Summary of results II:

- Next steps?
  - Improve our understanding on the adoption of business practices
  - Analyzing profits reports at baseline (any biases?)
  - Complete data set
    - for FU2 (1 year after - 2 extra cohorts): end of 2016
    - For FU3 (2 years after): late 2017
  - Trimming the questionnaire for FU3 to avoid attrition
- **STAY TUNED!!**



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