The Dynamics of Entrepreneurial Human Capital: Evidence from Indonesia

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Micro and Small Enterprise Entrepreneurship in Indonesia

• Analysis of the formation and development of micro and small enterprises in Indonesia, 1993-2008.

• Key questions:
  – What is behind the formation and growth (or lack thereof) of small enterprises in Indonesia?
  – If enterprises fail to form or grow, is it due to lack of credit, or something else?
  – To what extent are differential outcomes due to differences in ability and business experience?

• Keep in mind: analysis based on observational data, not on testing a specific policy intervention.
Relevant Evidence

• A number of existing studies find that access to credit is not necessarily the binding constraint to most poor households in starting new enterprises (e.g., Banerjee et al., 2010; Karlan and Zinman, 2010).

• Emerging literature on entrepreneurship-specific and managerial human capital finds that standard training is not so effective for microentrepreneurs (e.g., Karlan and Valdivia, 2011), but some promise to more contextually-relevant interventions such as consulting (e.g., Bruhn et al., 2012).
  – A number of studies on training/consulting interventions, little evidence on the value of real-world experience (potential learning-by-doing effect).
The Data

• IFLS tracks the same 7300 households and their splits over time (grows to 10,500 households).
• Representative of 83% of Indonesian population.
• Each round contains thousands of detailed surveys of household enterprises.
Descriptive Evidence (from IFLS)

1. Vast majority of micro-enterprises lack significant investment in physical assets.
2. Vast majority of micro-enterprises fail to “transition upward” in terms of capital or employees.
3. Vast majority of micro-enterprises show little dynamism in terms of increased earnings.
4. Female-owned enterprises less dynamic than male-owned ones.
Most MSMEs: Lack of Dynamism and Failure to “Transition Upward”

- Occupational transitions 2000 to 2008, between business owners, unemployed, pure self-employed and wage earners.
- Evidence generated from Indonesia Family Life Survey (similar to Mongragon-Velez and Pena for Colombia).
Most MSMEs: Lack of Dynamism (Toth, 2010)

- Plot of profit growth amongst Indonesian MSMEs. Data from Indonesia Family Life Survey (IFLS).
- Distinguishes (1) pure self-employed, (2) those with only family/unpaid employees, (3) those who hire wage workers.
Female-owned enterprises less dynamic

- Female-owned enterprises:
  - Less likely to operate outside home (63 vs 83%)
  - Less likely to apply for business permits (47 vs 52%)
  - Startup with less wage workers (0.2 vs 0.8 on average)
  - 30% less startup capital
  - 30% lower earnings
Descriptive Evidence

1. Vast majority of micro-enterprises lack significant investment in physical assets.
2. Vast majority of micro-enterprises fail to “transition upward” in terms of capital or employees.
3. Vast majority of micro-enterprises show little dynamism in terms of increased earnings.

→ If this is true, what is driving observed enterprise activity?
Possible Forces: Access to finance

1. Lack of access to finance.
   • Empirical analysis uses descriptive evidence combined with a number of positive, exogenous shocks in access to funds.
   • Consistent with RCT-based studies (cited above) from other countries, access to finance does not seem to be the key binding constraint for most of the poor to starting a new enterprise.
Possible Forces: Human capital

2. Variation in entrepreneurial and managerial human capital.
   • Parental background important correlate enterprise startup and at what size.
   • Exploit two “natural experiments” to estimate the role of enterprise experience (potential learning-by-doing effect).
     i. Cross-regional variation in formal sector labor market churning,
     ii. Studying relatively high-ability individuals who plausibly involuntarily started enterprises due to 1997-98 E Asian financial crisis.
Possible Forces: Human capital

2. Variation in entrepreneurial and managerial human capital.

- Provide some of the first rigorous evidence of a potential “learning-by-doing” effect in enterprise activity.
- Effect of experience on earnings 2.5-3% in general population and 5-6% among the crisis-period entrants who are totally new to running an enterprise.
Policy Implications

• On access-to-finance:
  – Consistent with other studies, find that access-to-finance is not a very responsive policy variable in increasing *startup activity* amongst potential poor microenterprise owners.

• On human capital
Policy Implications

• On access-to-finance

• On human capital:
  – Find evidence consistent with direct experience as an important source of entrepreneurship-specific human capital formation.
  – Consistent with other evidence that context-relevant entrepreneurship-specific human capital and business knowledge interventions can be effective.
  – Raises policy design questions: (1) how to design cost-effective, context-relevant interventions, (2) value of direct enterprise experience (perhaps complemented with consulting/mentoring interventions) for individuals with potential as high-performance entrepreneurs.
Making the Leap from Self-Employed to Employer?
What matters – capital, labor, or training?

David McKenzie, World Bank
(with Suresh de Mel and Chris Woodruff)
In developing countries there are lots of self-employed, but few of them hire workers.

Figure 3b. Share of employers and own-account workers in total employment, available European Union and low-income and lower-middle-income sub-Saharan African countries, latest years.
What does it take to make the jump from self-employed to employer?

• Work with subsistence firms has found last impacts of access to capital on profits (de Mel et al, 2012; Field et al. 2012), but no impact on employment creation.

• Existing literature on business training struggled to find employment effects

• But: there are so many self-employed, if we can get even a fraction to become employers, may have major impact on job creation.
What constrains firm owners from hiring and growing?

- Think about constraints to using inputs A, K and L in production function:
  - **A**: owners may lack ability to grow business to next level; or to hire and manage workers effectively.
  - **K**: firms may be credit-constrained, not able to purchase the capital needed to make extra worker productive.
  - **L**: new workers may require a period of on-the-job training to become productive, with social, subsistence or legal constraints preventing firms paying low or negative wage in interim; search frictions may make it costly to identify and hire new worker.
What do we do?

• We offer selected firms 0, 1 or 2 of the following:
  – Matched savings program (50-100% match rates, ‘locked’ for 9 months)
  – Training (ILO “Improve Your Business”)  
  – Incentives to hire new worker (4000 LKR/month, ~50% of unskilled wage)

• Baseline surveys in April/Oct 2008 – then interventions, and twice-yearly surveys through April 2012.

  => long-term tracking of progress and constraints to becoming an employer.
Putting together a Sample

- Sample of 1535 Sri Lankan microenterprise owners
  - Male
  - Urban areas (Colombo, Kandy, Galle)
  - Selected through door-to-door screening exercise of households in randomly selected GNs (census tracts)
  - aged 20 to 45
  - with 2 or fewer employees (87% non-employers)

- Note: random sample of firms with these characteristics
  - not restricted to MFI clients, or only subsistence firms
  - Advantage is allows us to learn about full range of small firms.
  - But downside is that heterogeneity amongst firms reduces power
Timeline of project

- April 2008: Screening and baseline survey
- October 2008: Baseline survey for ‘booster’ sample + follow-up
- April 2009
- October 2009
- April 2010
- October 2010
- April 2011
- October 2011
- April 2012
Timeline of project

- Apr 2008: Screening and baseline survey
- Oct 2008: Baseline survey for ‘booster’ sample + follow-up
- Oct 2008: Begin matched savings program
- Aug 2009: Savings program account ‘unlocked’
- Oct 2009
- Apr 2010
- Oct 2010
- Apr 2011
- Oct 2011
- Apr 2012
Timeline of project

- **April 2008**: Screening and baseline survey
- **Oct 2008**: Baseline survey for ‘booster’ sample + follow-up
- **April 2009**: June - July 2009: Training program
- **Nov 2008**: Begin matched savings program
- **August 2009**: Savings program account ‘unlocked’
**Timeline of project**

- **April 2008**: Screening and baseline survey
- **October 2008**: Baseline survey for ‘booster’ sample + follow-up
- **November 2008**: Begin matched savings program
- **August 2009**: Begin wage subsidies
- **August 2009**: Savings program account ‘unlocked’
- **October 2009**: Wage incentives end
- **April 2010**: Wage incentives end
- **October 2010**: Savings program account ‘unlocked’
- **April 2011**: Savings program account ‘unlocked’
- **October 2011**: Savings program account ‘unlocked’
- **April 2012**: Savings program account ‘unlocked’
<table>
<thead>
<tr>
<th>Category</th>
<th>Number Offered</th>
<th>% Participating</th>
</tr>
</thead>
<tbody>
<tr>
<td>Savings</td>
<td>559</td>
<td>81.4% (455)</td>
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<tr>
<td>Training</td>
<td>589</td>
<td>57.9% (341)</td>
</tr>
<tr>
<td>Employment</td>
<td>845</td>
<td>29.2% (247)</td>
</tr>
</tbody>
</table>

(1) Based on the percentage completing the training course. 368 (62.5%) began the training course.
Impacts on Input Use

• Look at impacts on
  – Management practices (expect impact from training)
  – Capital stock (expect impact from savings)
  – Labor usage (expect impact from wage subsidy)
Impact on Management Practices

Solid Markers indicate statistically significant point estimate
Solid Markers indicate statistically significant point estimate
Impact on Number of Paid Workers

Solid Markers indicate statistically significant point estimate
From inputs to outputs?

• Does this added use of inputs lead firms to sell more, increase profits, and owner’s to increase household income?
Impact on Monthly Sales (% increase)

% increase in monthly sales relative to control mean

Solid Markers indicate statistically significant point estimate
Summary of output impacts

- With more capital they sell more
- But aren’t significantly more profitable
- And don’t earn significantly more household income
Do interactions help?

• Theoretical reasons to think there may be complementarities
  – E.g. training may be of no use if you don’t have capital to use
  – Hiring another worker may be more profitable if you have the training on how to grow the business and create enough extra work for them
  – Hiring another worker may require complementary capital (e.g. tailor might need another sewing machine)

• But we find no significant positive interactions between treatments (most are negative and insig.)
Conclusions/Discussion

• Most consistent effects come from a savings program which allows owners to build capital in their enterprises.
  – Why different from our earlier work which found no employment impact from capital?
    • Previous work focused on firms with capital stock below $1000 – subsistence firms – no upper cap here, getting some firms slightly closer to cusp of making the jump?
    • Role of the macro environment? Sri Lanka growing fast.

• Wage incentives lead to higher employment, but not higher profits

• Training not having large effects
Take-aways

• Impacts take time to materialize, and the period at which you measure makes a difference.

• Generating new jobs in microenterprises is hard, but capital and labor subsidies seem to work better than skills training.
Keeping it Simple: Financial Literacy and Rules of Thumb

Alejandro Drexler  
UT-Austin

Greg Fischer  
LSE, IPA, J-PAL

Antoinette Schoar  
MIT, NBER, ideas42

Impact & Policy Conference  
Bangkok 2012
Growing evidence that large share of population unprepared to make financial decisions

- Widespread lack of financial literacy, particularly among people in the US with low levels of education, minorities and women (Lusardi 2008)
- US households generally unfamiliar with concepts necessary to make efficient savings and investment decisions (Lusardi and Mitchell 2007)
- Very low levels of financial literacy in India and Indonesia (Cole, Sampson, Zia 2009)
Mixed evidence on whether or not financial literacy can be taught

- Some survey evidence (Bernheim & Garrett 2003; Lusardi 2004) that those attending financial training programs subsequently make better financial decisions
  - Especially attendees with low income or education levels
  - But self-selection suggests results overstated

- Duflo and Saez (2004) exploit random assignment to raise savings awareness
  - Find small effects on savings plan enrollment

- Cole, Sampson and Zia find only modest effect of financial literacy training program in Indonesia

- Karlan and Mullainathan find mixed results for vendors in India and the Philippines
Growing questions about efficacy of microfinance

- Effects on business growth and poverty alleviation still unproven
  - Evidence of business growth is mixed
    - Banerjee, Duflo, Glennerster, Kinnan (2009)
    - Karlan and Zinman (2010)
- How can we improve the effectiveness of microfinance?
“...rather than waste our time teaching [borrowers] new skills, we try to make maximum use of their existing skills. Giving the poor access to credit allows them to immediately put into practice the skills they already know…” (Yunus 1999)

Many practitioners have taken a different approach

This is starting to change from researchers as well

- Bruhn, Karlan, and Schoar (2010) evaluate individualized consulting services for small businesses in Mexico
- Karlan and Valdivia (2010) study mandatory business skills training for microfinance clients in Peru
We aim to answer the following questions:

- To what extent can financial literacy training improve firm and individual outcomes for microentrepreneurs in Dominican Republic?
- What is the trade-off between traditional, principles-based accounting training vs. simple, rule-of-thumb methods?
To answer these questions, we conducted a randomized control trial of two training programs

- Worked with ADOPEM, a microfinance institution lending to individuals & small businesses in the Dominican Republic
  - Operates a range of ongoing training programs
  - Wanted to assess efficacy of these programs
  - Expect significant selection bias in who attends such programs
- Randomly assigned training opportunity across 1200 clients
- Two treatments:
  - Traditional, principles-based accounting: similar to programs by FFH, ILO, BRAC
  - Rule-of-thumb methods: simple decision rules
  - Take up rate: 44%
  - Subsidized: RD$200 price about 20% of cost
If training does not change management practices or improve outcomes, it could be that:

- Individuals did not understand or were unable to implement new management techniques after classroom training
- Individuals understood management techniques but chose not to implement
- Even when the material is understood and implemented, it does not affect business performance

Randomly assigned follow-up activities to disentangle these explanations

Experimental design aims to begin unraveling mechanisms
The median client

- Loan size US$600
- Average weekly sales of US$85
  - Bad week US$50
  - Good week US$115
- About 60% are sole proprietorships
  - Of the rest, 80% have either one or two employees
- Typical businesses include small retail shops, colmados, beauty salons, and food service
Typical clients
Attendance is not random
Those who show up are more likely to

- Be women
- Better educated
- Have received prior training and want more
- Smaller businesses
- With bigger plans

All this suggests our concerns about selection were well founded
Rule of Thumb training improves financial practices

* Denotes significance at the 10%-level, ** at the 5%-level, and *** at the 1% level of effect relative to control.
Rule of Thumb also improves revenues in bad weeks

* Denotes significance at the 10%-level, ** at the 5%-level, and *** at the 1% level of effect relative to control.
Standardized effects show significant effects on business and personal financial practices

* Denotes significance at the 10%-level, ** at the 5%-level, and *** at the 1% level of effect relative to control.
Neither treatment has a significant impact on institutional outcomes

No change in:

- Loan size
- Loan type
- Repayment performance
- Retention
Want to rule out survey & Hawthorne effects as explanation for reported differences in management practices

- Construct index of financial reporting errors
  - Bad period sales greater than average or good
  - Average period better than good
  - Average period profits better than good period sales

- 45% of subjects make at least one mistake; 11% make three or more

- Also look at different measures of profits
Rule of thumb reduces errors; accounting has large effect, but only for highly educated.

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<thead>
<tr>
<th></th>
<th>Accounting (1)</th>
<th>Accounting (2)</th>
<th>Rule of Thumb (3)</th>
<th>Rule of Thumb (4)</th>
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<tr>
<td><strong>Dependent Variable:</strong></td>
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<td>Any Reporting Errors(^b)</td>
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<tr>
<td>Treatment</td>
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<td>-0.09(^{***})</td>
<td>-0.08(^*)</td>
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<td></td>
<td>(0.06)</td>
<td>(0.07)</td>
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<tr>
<td>Interaction</td>
<td>-0.16(^*)</td>
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<td></td>
<td>(0.09)</td>
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</tbody>
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Rule of Thumb has robust effects

- Follow-up & intensity may matter for accounting treatment
  - Irrelevant for Rules of Thumb
- Rule of Thumb has strongest effect for
  - Those who express least interest in training
  - Those whose starting practices were the worst
- Effect appears independent of education
No effect **in this setting** from traditional accounting training
- Neither on business practices nor performance
- Some positive results when augmented with intensive follow-up and for more well educated

Easy-to-implement, rule of thumb training
- Improves management practices
- May also improve business performance, particularly in bad periods; mechanism remains unclear
- More robust: works even with low education or initial ability
- But cannot make claims about finding global best practices

More is not necessarily better
Thank you!

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