Business Management and Training

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UE 8 Private Sector & Development

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Outline

Differences in agricultural productivity *across* countries

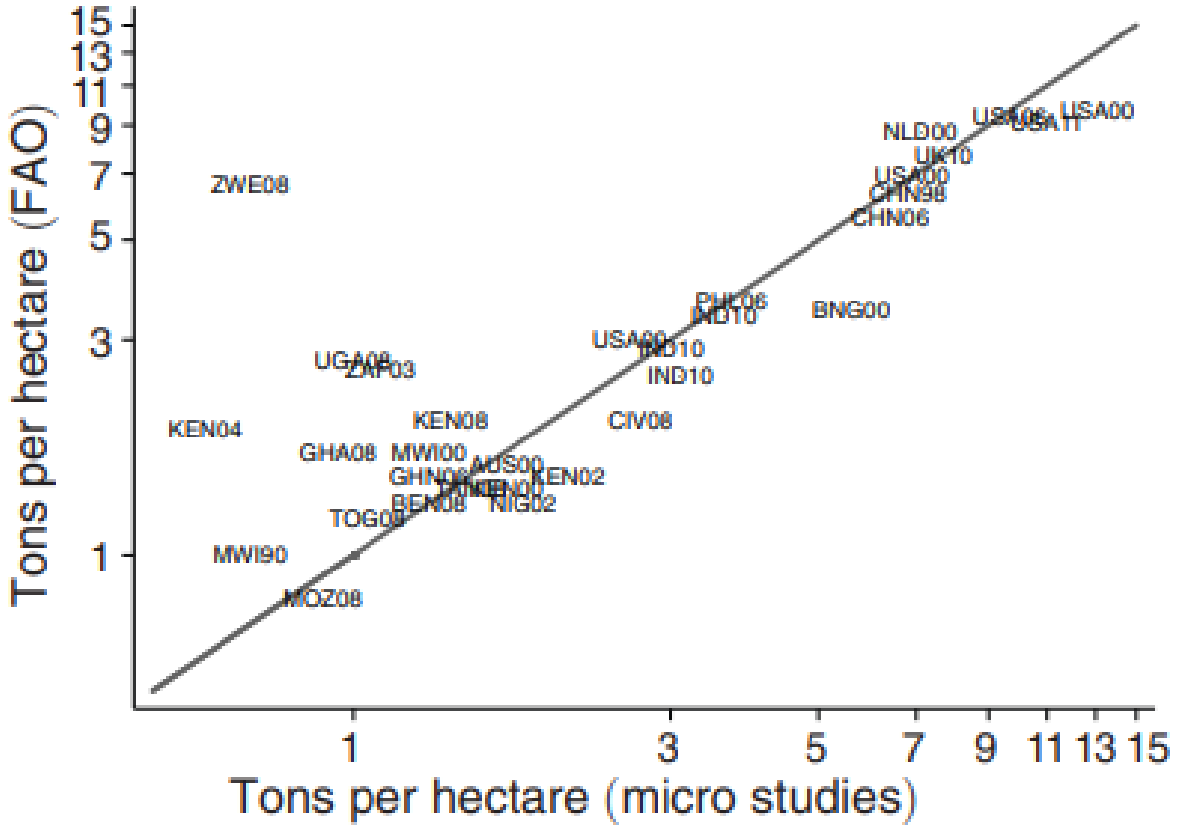


FIGURE 1. GRAIN YIELDS FROM AGGREGATE AND MICRO SOURCES

Source: Gollin, Lagakos, & Waugh 2014

Differences in sectoral productivity *within* countries

TABLE 1—SECTOR LABOR PRODUCTIVITY DIFFERENCES AND EMPLOYMENT SHARES

	Agriculture	Aggregate	Non-agriculture	Ag/non-agriculture ratio
90–10 labor productivity difference	45	22	4	10.7
Employment shares ninetieth percentile country	3		97	
Employment shares tenth percentile country	78		22	

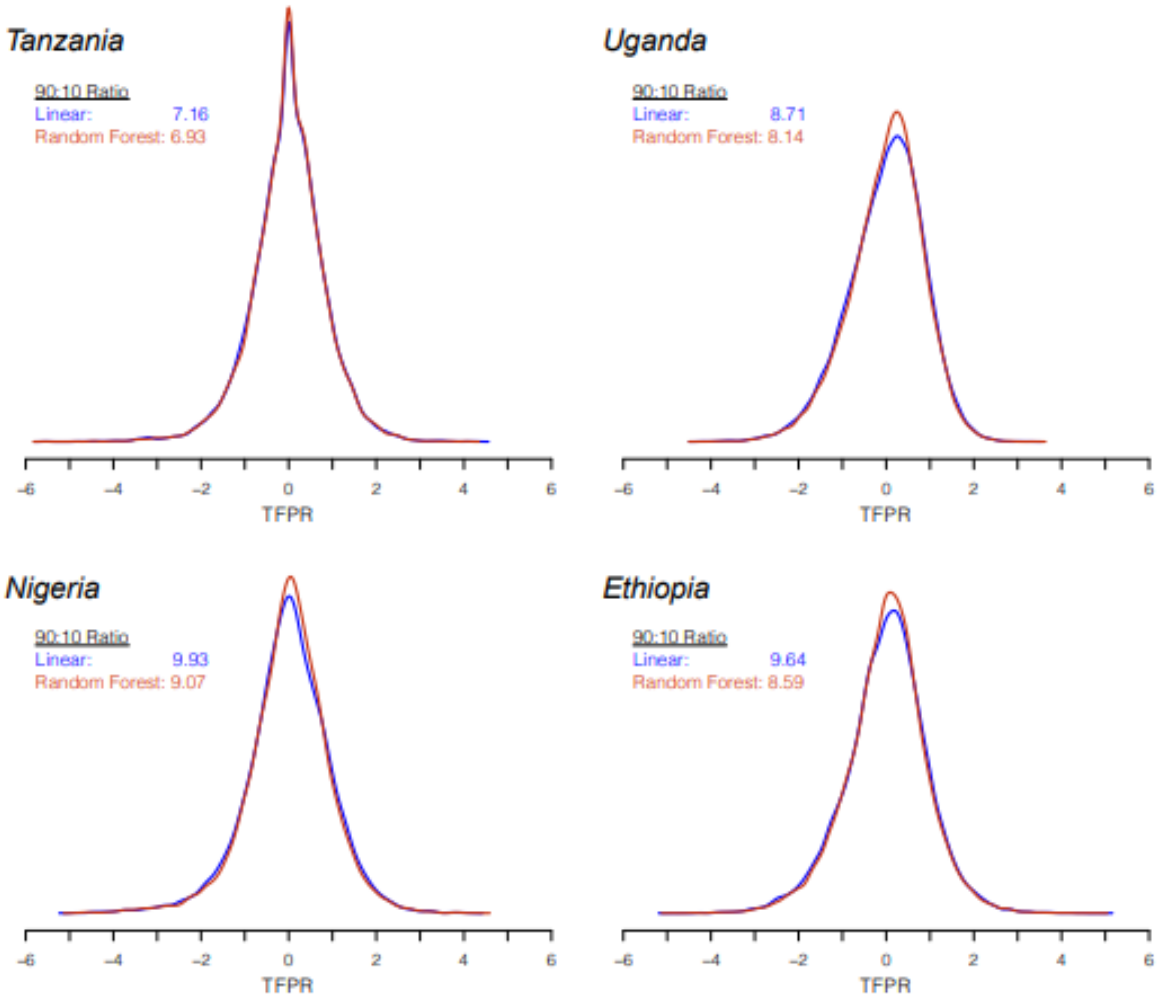
Notes: The aggregate productivity difference is the ratio of GDP per worker between the ninetieth and tenth percentile countries. Sector productivity differences are the ratio of sector output per worker in the ninetieth and tenth percentile countries. The Ag/Non-agriculture Ratio is the agriculture productivity difference divided by the non-agriculture productivity difference.

Source: Caselli (2005).

Source: Lagakos & Waugh 2013

- In cross-section, larger dispersion of TFP is a sign of misallocation (Hsieh & Klenow 2012, Bartlesman et al 2013)
- Why?

Differences in agricultural TFP distribution across countries



Source: Maue, Burke, & Emerick 2020

Use remote sensing and ML to account for measurement error in agricultural output measurement

Differences in manufacturing TFP distribution across countries

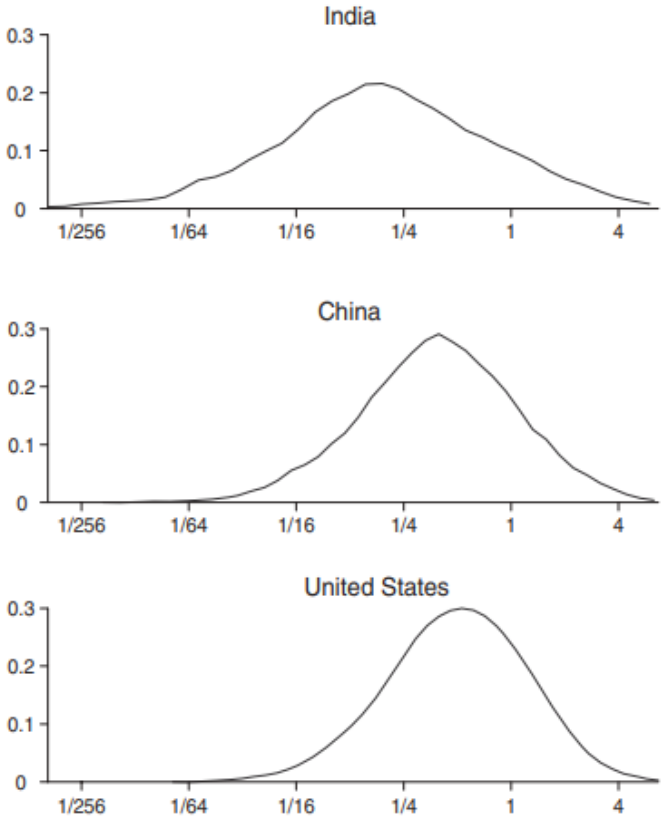


FIGURE I
Distribution of TFPQ

Source: Hsieh & Klenow 2009

TFPQ: measure of physical productivity accounting for plant-specific prices

What can explain TFP dispersion in developing countries?

Many potential factors related to topics covered in this course

- Financial market failures
- Labor market failures
- Institutional constraints: rule of law, corruption, etc.
- Social constraints
- Psychological/cognitive constraints
- Human capital constraints
  - Today: firm management and training

Constraint to productivity: Adoption of business and management practices

- Wide range of business and management practices most firms could benefit from adopting
  - Examples: separating household and business accounts, keeping basic records, monitoring inventory, budgeting, quality control, employee hiring and retention, etc.
- Particular needs for small firms in developing countries
- Evidence that firms adopting such practices are more productive and grow faster (Bloom & van Reenen 2010, McKenzie & Woodruff 2017)

Evidence on returns to business training

- $>$ \$1 billion spent annually on training at least 4-5 million potential and existing entrepreneurs in developing countries
- Growing evidence base on training interventions (summarized in McKenzie & Woodruff VoxDevLit)
- Key takeaways Gaps
  1. Entrepreneurship can be taught
  2. Better business practices matter for all sizes of enterprises
  3. Training can at least modestly improve business practices for microenterprises
  4. More intense consulting improves performance of larger firms and their subsequent growth
  5. Innovating the content and delivery methods for training is important
- Update of McKenzie (2021) meta-analysis
  - Training on average increases sales by 5.6% and profits by 12.1%
  - Some heterogeneity and power limitations across studies

Many types of business training

- Traditional entrepreneurship training More
  - Classroom style, basic business practices
  - Modest but significant average effects on improving business practices and outcomes in many settings
- Personal initiative and heuristic training More
  - Entrepreneurial mindset, rules of thumb
  - Effective for subsistence entrepreneurs if trainers are high-quality
- Consulting (Today: Bloom et al 2013) More
  - Customized, intensive, individually-tailored training
  - Evidence of effectiveness for medium/large firms
- Online training and consulting More
  - Increasingly used, scalable, low-cost, increasingly accesible
  - Evidence of modest benefits, especially if paired with some personal training
- Others Kaizen Mentoring Incubators/Accelerators

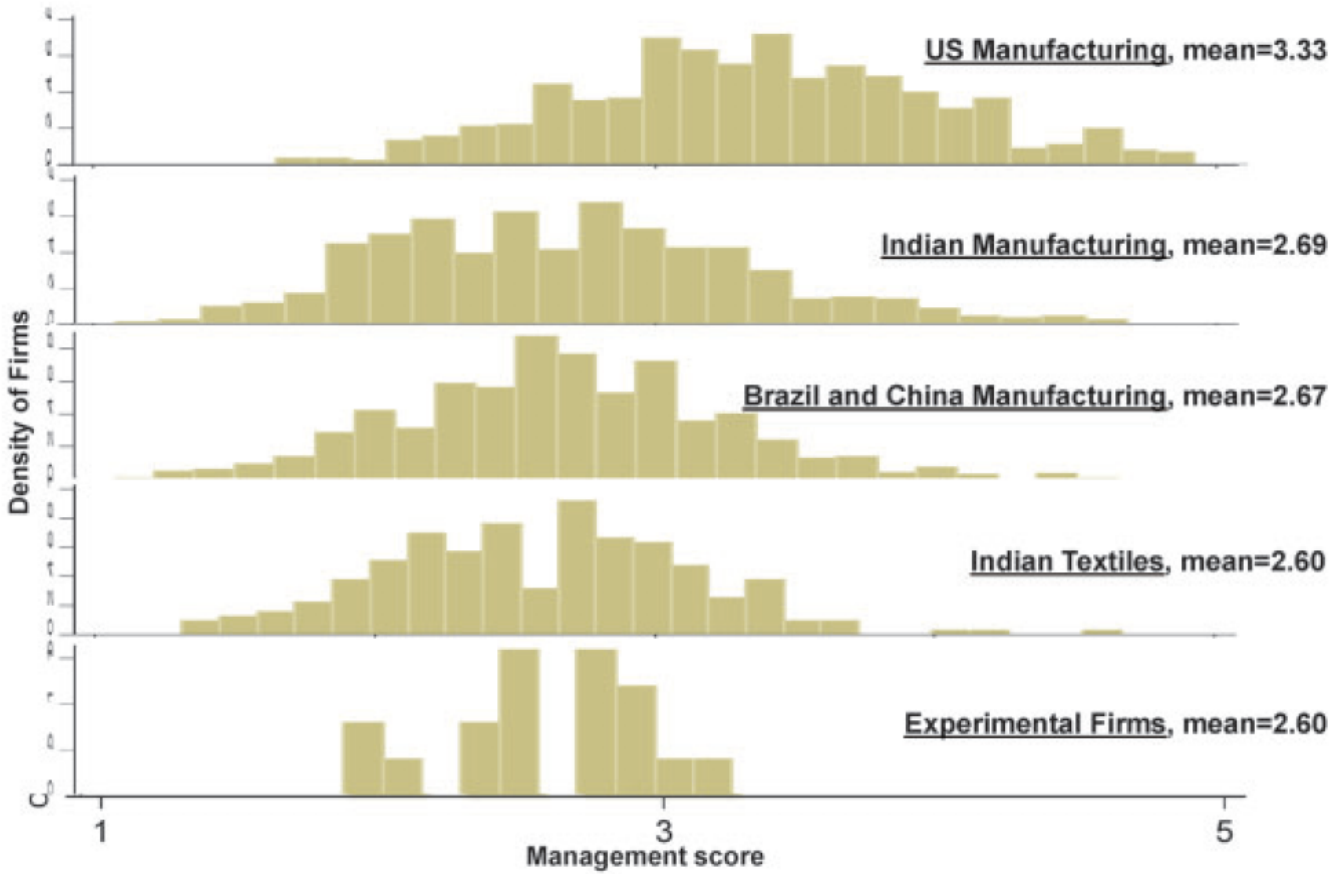
Bloom et al. research agenda: role of firm management

1. To what extent can differences in management practices account for differences in TFP across firms and countries?
   - Management practices differ within and across countries and are strongly associated with firm productivity, profitability, and survival (Bloom et al 2007)
   - Management practices account for more than 20% of variation of productivity in US plants; similar share to role of R&D, ICT, human capital (Bloom et al 2019)
2. How do management practices enter the production function?
   - Better-managed firms recruit and retain workers with higher average human capital (Bender et al 2018)
   - Social capital as proxied by trust affects internal firm organization (e.g., decentralization, delegation) and thus aggregate productivity (Bloom et al 2012)
3. Moving beyond indicative correlations to causal evidence: Bloom et al (2013) $\Rightarrow$ today

Outline

Motivation: Variation in firm management quality

- Large productivity dispersion in developing countries
- Firm management score spreads look similar to TFP spreads
- Large literature on correlations between management practices and productivity, but not causal evidence (before Bloom et al 2013)



Motivation: Observably poor management practices

Garbage outside a factory

Garbage inside a factory

Garbage inside a factory

Shelves overfilled and disorganized

Motivation: Observably poor management practices

Yarn without labeling, order or damp protection

Yarn piled up so high and deep that access to back sacks is almost impossible

Different types and colors of yarn lying mixed

Crushed yarn cones (which need to be rewound on new cones) from poor storage

Paper summary

- Design: First experimental evidence on the importance of management practices in large firms; sample of large multiplant Indian textile firms
  - Random assignment of extensive management consulting to adopt recommended improved management practices
- Results: Treated plants have significant improvements in quality, inventory, and output, and estimated productivity increase of 17% in the first year
  - Suggestive evidence that better management allowed greater delegation and enabled firms to open more production plants in three years after experiment
  - Adoption of improved management practices by other plants owned by firm
- Mechanisms
  - Information constraints appear to be most important factor for low initial adoption of good management practices
  - Restrictions on competitive pressures allow this poor management equilibrium

Study context

- Textile production largest manufacturing sector in India
- All textile firms around Mumbai with between 100-1000 employees (66) contacted and offered free management consulting
  - 17 agreed to commit senior management time
  - Selection into participation, but bias could go either way
  - Project firms not significantly different on preintervention observables from nonproject firms
- Firm characteristics
  - Large firms: avg. 270 employees, $13M in assets, $7.5M in annual sales
  - All firms majority family owned and all directors family members
  - 1.65 plants on average, plant sites operate 24h/365d

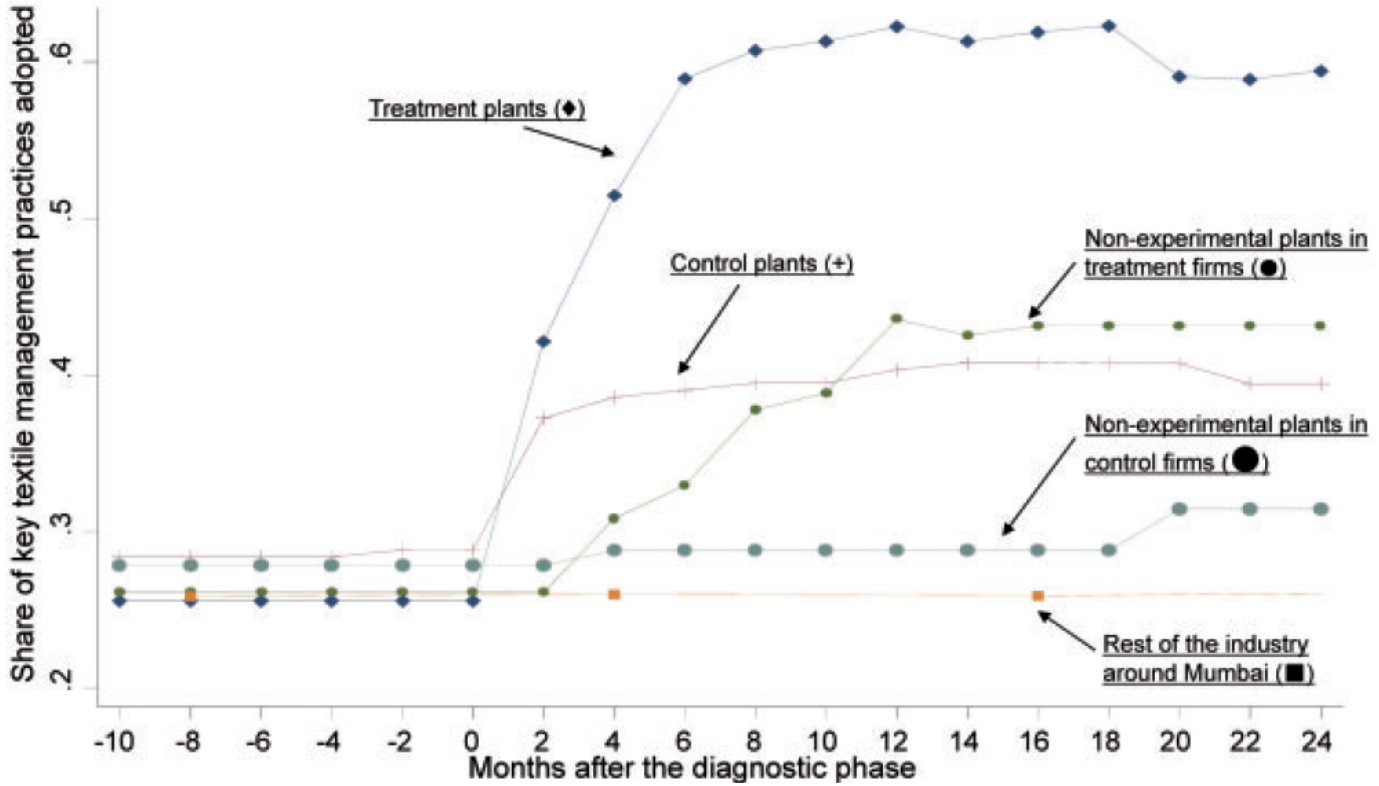
Experiment

- Treatment: free management consulting from high-quality international firm
  - 6 firms randomized to control, 11 other firms treatment
  - Plant-level assignment; some plants of study sample firms excluded from intervention but still collected data
- Small sample size concerns
  - Apply firm-clustered bootstrap SEs, permutation procedures that don't rely on asymptotic approximation, and large T (weekly data) rather than large N asymptotic approximations
  - Also benefit from limited measurement error (collection directly from machines) and intensive treatment

Data collection

- Experiment phases
  - 1 month **diagnostic phase**: baseline management practices and performance and recommendations for change for all firms
  - Treatment plants get 4 month **implementation phase** with consulting firm support to help introduce key management practices
  - **Measurement phase** collecting performance and management data weekly for over 2 years
- Focus on 38 key managements practices under 5 areas: factory operations, quality control, inventory, human resources management, sales and order management
  - Measure binary adoption of each practice

Consulting improves management practices



- *Treatment plants*: 38pp ⇑ use of target management practices after 1 year, persistent effects
- *Control plants* ⇑ adoption by 12pp ⇒ diagnostic phase
- Spillovers to *non-experimental treatment plants*

Management affects performance

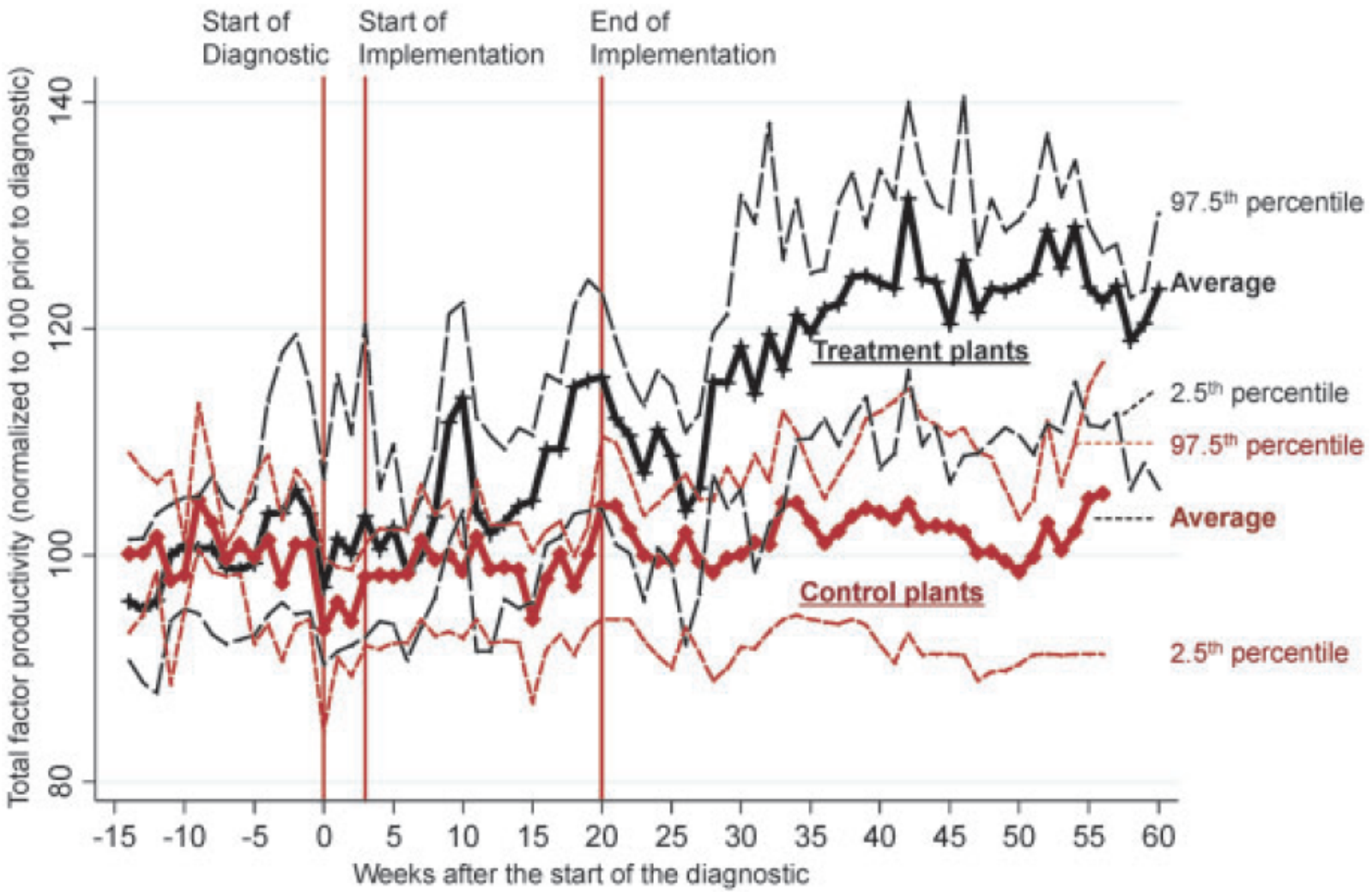


FIGURE VIII

Total Factor Productivity for the Treatment and Control Plants

Management affects performance (ITT)

	(1)	(2)	(3)	(4)
Dependent variable	Quality defects	Inventory	Output	TFP
Specification	ITT	ITT	ITT	ITT
$\text{Intervention}_{i,t}$	−0.564**	−0.245**	0.090**	0.154*
	(0.235)	(0.117)	(0.037)	(0.084)
$\text{During implementation}_{i,t}$	−0.293**	−0.070	0.015	0.048
	(0.137)	(0.093)	(0.031)	(0.056)

- Based on results, estimate total increase in profits of $325,000 per plant per year from treatment, in medium run
- Compare to direct costs less than $3,000 to implement management changes, and $250,000 consultancy would have charged if firms paid directly
- Marginally significant effect of treatment on number of plants per firm
- No impact on number of employees or looms per plant

Long-term impacts: Bloom et al 2020

- Revisited same firms 9 years later
- 50% of practices adopted during original study disadopted
  - Manager turnover and lack of director time among most cited reasons for disadoption
- Persistent large and significant treatment-control gap in management practices
- Limited spillovers across firms, but significant spillovers across plants within firms

Student presentations

1. Gine & Mansuri (2021 EDCC) Money or Management? A Field Experiment on Constraints to Entrepreneurship in Rural Pakistan Framework
2. De Mel, McKenzie, & Woodruff (2014 JDE) Business training and female enterprise start-up, growth, and dynamics: Experimental evidence from Sri Lanka Framework

Outline

Puzzle: Why don't firms adopt better management practices?

- Better management profitable, and many practices already known but not adopted
- Bloom et al (2019): management practices in US manufacturing plants influenced by business environment (right to work laws) and learning spillovers
- Bloom et al (2013): survey of Indian plant owners and managers on reasons for non-adoption
- Four main possibilities in this context
  - Lack of information/awareness
  - Misperceptions/incorrect information
  - Capital constraints
  - Human capital/cognitive constraints

Simple conceptual framework

$$\max_{K,L,M} \quad pf(K,L,M) - wL - rK - c(M)$$

Problem of optimizing management practices M: how do potential constraints come in?

Simple conceptual framework

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Problem of optimizing management practices M: how do potential constraints come in?

1. Information constraints: uncertainty about how M enters the production function

Simple conceptual framework

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Problem of optimizing management practices M: how do potential constraints come in?

1. Information constraints: uncertainty about how M enters the production function
2. Capital constraints: challenge with initial fixed cost of acquiring information, ongoing costs of adopting and maintaining practices $\Rightarrow$ increase $c(M)$

Simple conceptual framework

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Problem of optimizing management practices M: how do potential constraints come in?

1. Information constraints: uncertainty about how M enters the production function
2. Capital constraints: challenge with initial fixed cost of acquiring information, ongoing costs of adopting and maintaining practices $\Rightarrow$ increase $c(M)$
3. Human capital or cognitive constraints: cap on maximum M, or returns to M a function of human capital

Results: Information and adoption

- **Perception problems**: firms had heard of some practices but thought they would not be profitable to adopt
  - Major initial barrier for *common practices*
  - Incorrect information constraint hard to address: took time to change prior beliefs
  - 19.4pp decrease in non-adoption after 9 months from base of 34.6%
- **Information problems**: firms simply not aware of some practices
  - Major initial barrier for *uncommon practices*
  - Lack of information constraint easier to address
  - Non-adoption rate fell by 35.3pp after 9 months from base of 98.5%
  - Non-adoption rate remained high: information alone not sufficient in many cases

Results: Capital and cognitive constraints and adoption

- **Capital constraints**: no evidence of direct effects
  - Estimated market cost of free consulting could hinder firms' ability to improve management using external consultants, but owners/managers did not mention costs as a reason not to hire consultants
  - Indian firms overwhelmed with solicitations about money-saving methods, so perhaps less receptive to offers from management consulting firms $\Rightarrow$ issue of cognitive load
- **Cognitive constraints**: limits to owner time, ability, or self-control (procrastination)
  - Overstretched managers may not be able to learn and adopt better management practices
  - Particularly important for uncommon practices: requires more cognitive capacity to adopt
  - Explains around 20% of non-adoption of these practices after intervention
- **Human capital constraints**: limited availability of trusted managers

Discussion: Why do badly managed firms exist?

- 35% **tariff** on cotton fabric imports to protect Indian textile firms
- Constraints on growth from limited **managerial span of control**
  - Only family members in decision-making positions; lack of trust outside of family
  - Inability to decentralize perhaps due to weak rule of law in India
  - Lack of trust may be compounded by bad management practices making it difficult for owners to track managers
  - Constraint seems to bind, so productive firms cannot expand and reallocation does not drive out badly run firms
- **Entry of firms** limited by difficulty of separating ownership from control
  - Need families with capital and male family members to open firms $\Rightarrow$ firms do not enter rapidly
- Resultant equilibrium has low average productivity, low wages, low average firm size, and a large dispersion of productivity

Potential policy implications

- **Training**: Basic management skills
  - Constraints to scaling this?
- **Competition and FDI**: Free product markets and encourage entry by multinationals to spread best practices
  - Downsides?
- **Rule of law**: Improvements could encourage separation of ownership and control, promote reallocation
  - Constraints?

Outline

Topics covered in this course (1)

1. **Household-producer separation failures**
   - Key takeaway: market failures make production optimization non-separable from consumption optimization
2. **Risk and uncertainty**
   - Key takeaways: intrusion of household consumption smoothing objective into production decisions; financial market failures and information constraints limit options for managing risk; behavioral 'biases' limit insurance adoption
3. **Technology adoption**
   - Key takeaways: multiple constraints including credit and insurance access, lack of information (and role of networks in diffusion), limited market access, input market failures, local heterogeneity in production functions

Topics covered in this course (2)

4. **Credit, capital, and firm growth**
   - Key takeaway: credit constraints prevents growth, but other factors also potentially important
5. **Labor markets and unemployment**
   - Key takeaways (rural): fractured rural labor markets, credit and information constraints to migrating, social norms setting high wages
   - Key takeaways (urban): information frictions (adverse selection, moral hazard, matching), credit constraints, social and psychological constraints to labor supply
6. **Business management and training**
   - Key takeaways: information, human capital, and cognitive/psychological constraints in adopting productive practices

Cross-cutting themes

Particular challenges in optimizing production decisions for many firms in developing country contexts

1. Greater prevalence and degree of **market failures and constraints** in developing country contexts
   - Financial markets: credit, insurance, savings
   - Input markets: land, labor, etc.
   - Why market failures? Weak institutions, poor infrastructure and large rural populations, high informality, greater uncertainty, etc.
   - Solutions?
2. Importance of **information frictions and constraints**
   - Challenge to technology adoption, hiring, production optimization, etc.
   - Solutions?
3. Role of **social and psychological/cognitive factors**
   - Social norms, behavioral biases, cognitive constraints affect decisions
   - Psychology of poverty
   - Solutions?

Conceptually

- Importance of understanding contextual factors that may influence and constrain economic decisions
- Consider how to represent contextual factors as inputs or constraints in an optimization problem $\Rightarrow$ develop a theoretical/conceptual framework
- Use conceptual framework to develop hypotheses of how decisions should differ under varying assumptions about contextual factors
  - Good example to go back to: Karlan et al (2014)
- Relevant skill for all economists

Outline

Traditional entrepreneurship training

Back

- Classroom-style training in basic business practices
- Modest but on average significant effects on improving business practices and outcomes for microenterprises
- No effects on employment
- Heterogeneity across samples, no clear takeaways on which groups benefit most from traditional training

Personal initiative and heuristic training

Back

- Personal initiative training: develop a proactive entrepreneurial mindset
- Heuristic training: simple training focusing on heuristic guidelines or rule-of-thumb
- Some evidence of effectiveness for subsistence entrepreneurs, smallest and least developed
- Unlikely to be effective for medium-sized businesses
- Quality of trainers appears to matter a lot

Kaizen

Back

- Based on Japanese-inspired concept of lean production
- Limited evidence, no comparisons against other training programs
- But promising initial evidence of effectiveness for small manufacturing firms

Consulting Back

- Customized, intensive, individually-tailored training
- Evidence of effectiveness for medium/large firms, and for smaller firms above microentrepreneur level
- Challenge: expensive and difficult to scale
- Potential for group-based consulting and generative AI consulting

Mentoring

Back

- Limited evidence, but shows improvements in business outcomes
- Matching firms with well-performing peers shows promise, but questions about scaling and heterogeneity by type of peer
- No evidence of additional value when combined with traditional training for microentrepreneurs

Incubators and accelerators

Back

- Limited evidence, issues of selection into receiving these treatments
- But suggestive evidence of positive effects on firm survival, access to capital, growth

Online training and consulting

Back

- Increasingly being used
- Early evidence shows small subsistence firms can also access these services, but have modest benefits
- Larger impacts when training is paired with one-on-one (virtual) consulting and directed to larger more growth-oriented firms
- No evidence of impacts of television edutainment or SMS message education

Knowledge gaps

Back

1. What are the longer-term effects of training?
2. How do we improve the cost-effectiveness of training, for example, by better matching entrepreneurs to the appropriate type of training, or using online interactions?
3. What are the factors that limit the adoption of proven beneficial business practices by entrepreneurs and managers?
4. How do we make markets for training and consulting work better?
5. How do we design and evaluate incubator and accelerator programs?

Gine & Mansuri (2021) Framework (abstract from sex differences) Back

- Technology choice under borrowing constraints
  - Can borrow to purchase capital, subject to a limit
- Rural Pakistan: assume no liquid assets
  - Loan required to invest in high-return technology
- Borrowers differ in ability and knowledge: affects probability of being able to increase productivity with investment
  - Business knowledge is known, ability is unknown and revealed (and increased) through training
- Predictions of model
  - Access to larger loan increases probability of borrowing and investing
  - Business training improves knowledge and management practices, $\Uparrow$ profit and survival
  - Business training reveals ability, which is positively correlated with manager labor input and borrowing
  - Business training improves loan repayment

De Mel, McKenzie, & Woodruff (2014) Framework

Back

- Self-employment a large share of female employment
- Most female-owned enterprises small and have low productivity
- Context
  - Physical capital constraints
  - Labor market imperfections: selection into self-employment
  - Business skill as important input to production
- Implications
  - If only capital constraints bind: a grant should increase investment and improve outcomes (productivity, survival) and training should have no effect
    - Find limited effects of training on established businesses
  - If only skill constraints bind: a grant should have no effect and training should increase practices, investment (possibly), and outcomes
  - If both constraints bind: a grant should increase investment but may not improve outcomes, training should improve practices but may not improve outcomes, both together may improve outcomes
    - Results mostly consistent with this