

Differences in Management Practices and Productivity in Industrial Clusters

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Based on case studies of industrial development in various industries in

- Japan, China, Taiwan, Vietnam, and other East Asian countries
- South Asia including the garment industry in Bangladesh (highlighted in *WDR 2013: Jobs*)
- also in SSA
 - Leather shoe in Ethiopia: well more than 2,000 workshops.
 - Metalwork in Kumasi, Nairobi, and Addis Ababa
 - Garment in Dar es Salaam

Figure 1. An Illustration of Development Paths of Industrial Clusters

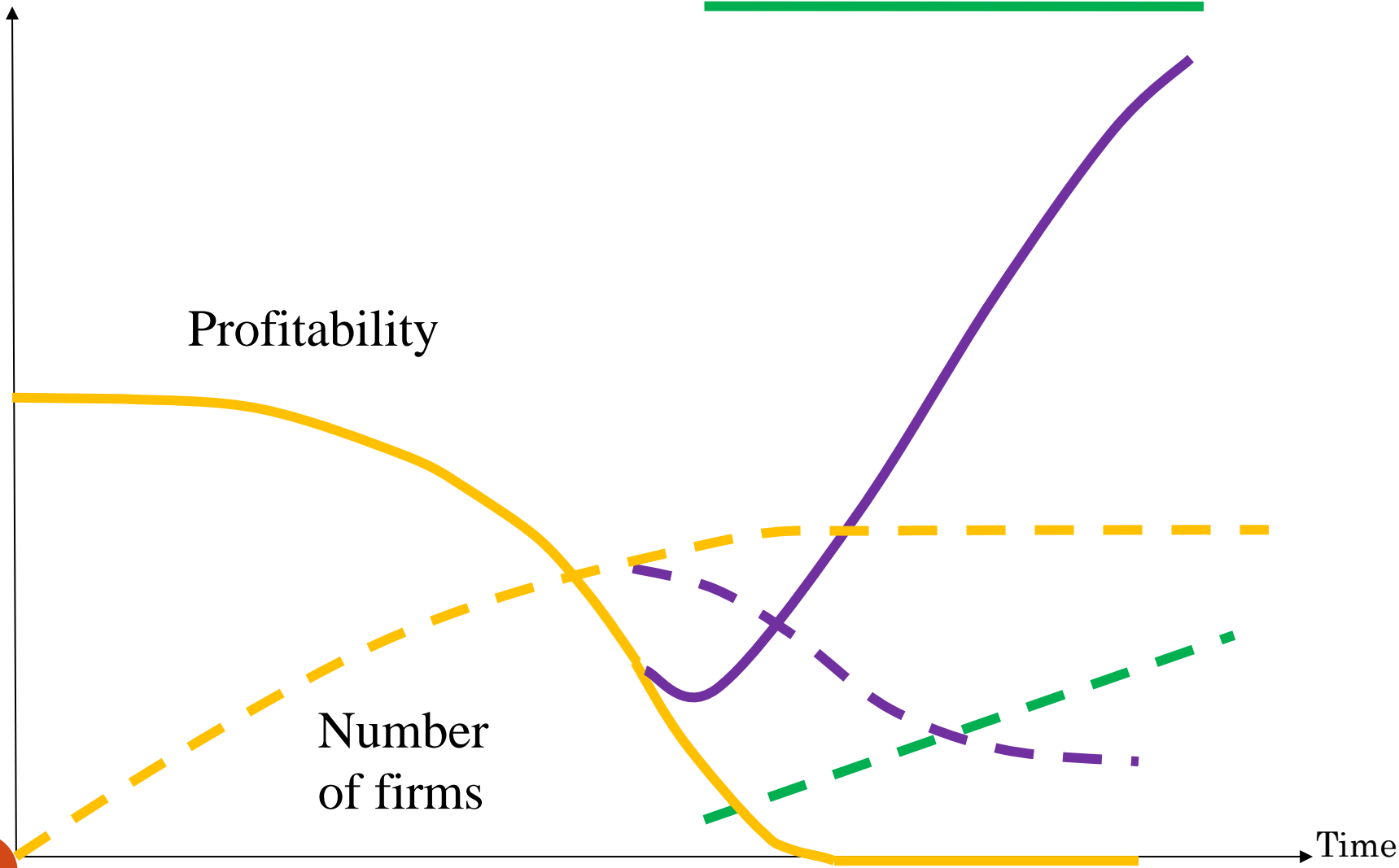


Table 1. Example of Steady Growth Path: Export-Oriented Garment industry in Bangladesh

Fiscal year	No. of garment factories	Direct employment (million workers)	Average employment per factory (workers)	% of garments in the country's export earnings
1983/84	134	0.04	298.5	3.9
1997/98	2776	1.5	550.3	73.3
2010/11	5150	3.6	699.0	77.5

Figure 2. Bangladesh garment industry

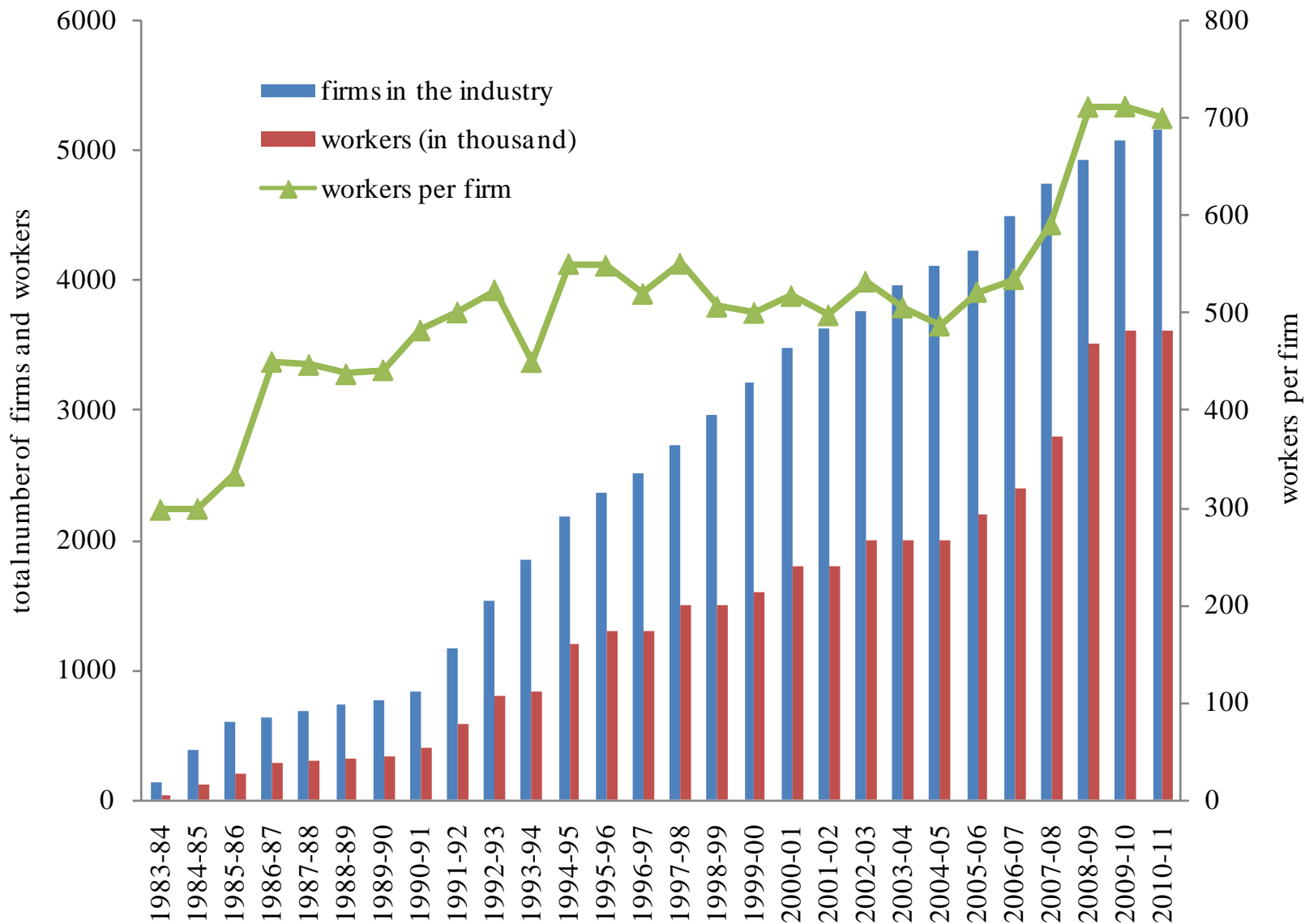


Table 2. Example of V-Shaped Development Path:
Electric fittings industry in Wenzhou, China

	1990	1995	2000
Number of firms	66	102	112
Number of independent firms	66	96	73
Sales revenue per firm	320.4	964.1	9525.7
Value added per firm	123.7	375.8	3671.4
Number of employees per firm	46.7	104.1	338.3
Capital stock per firm	372.0	983.9	7922.1



Figure 3: Value added (monthly) per worker and the number of workers: Electric fittings industry in Wenzhou, 1990

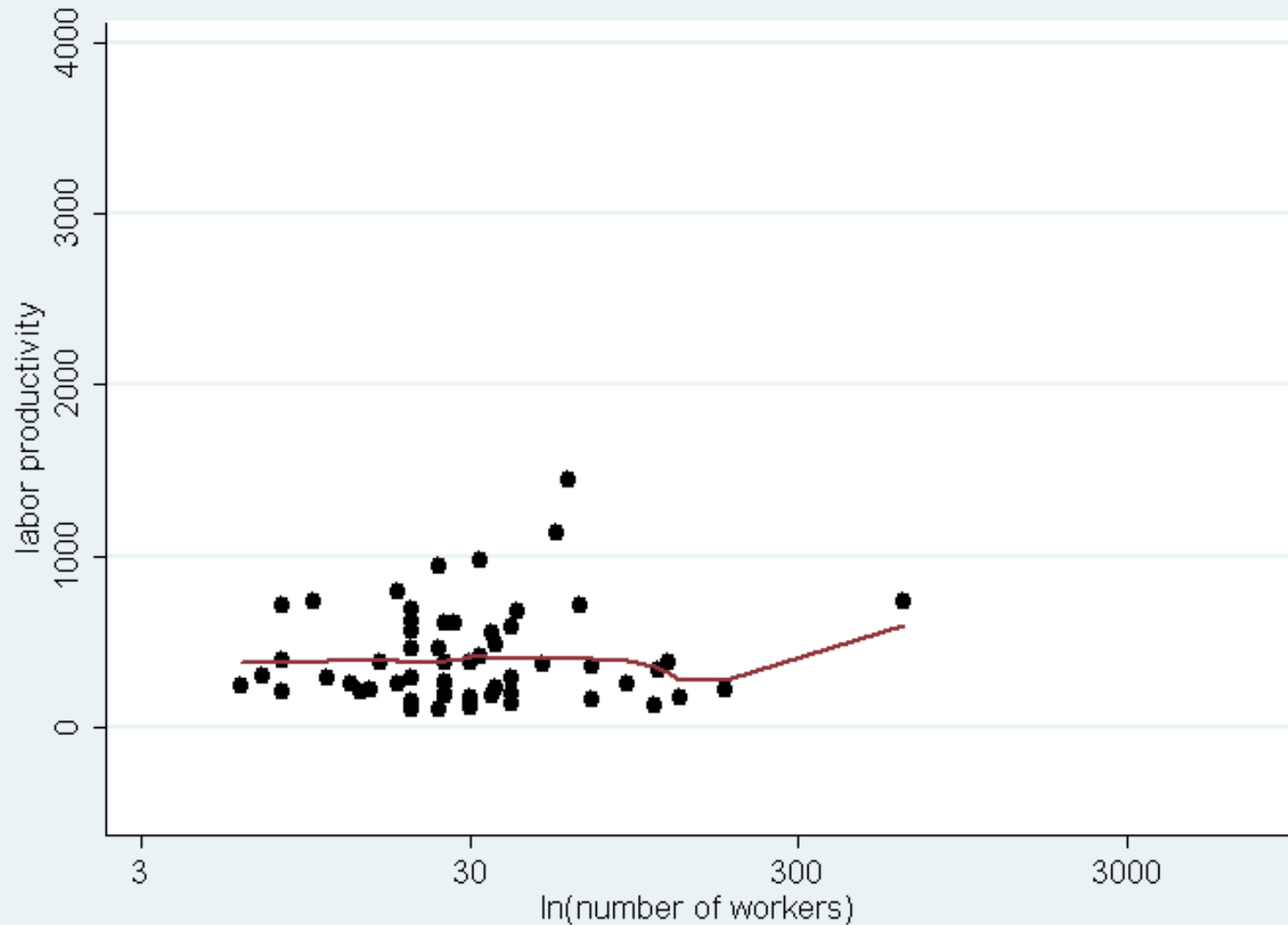


Figure 4. Electric fittings industry in Wenzhou, 2000

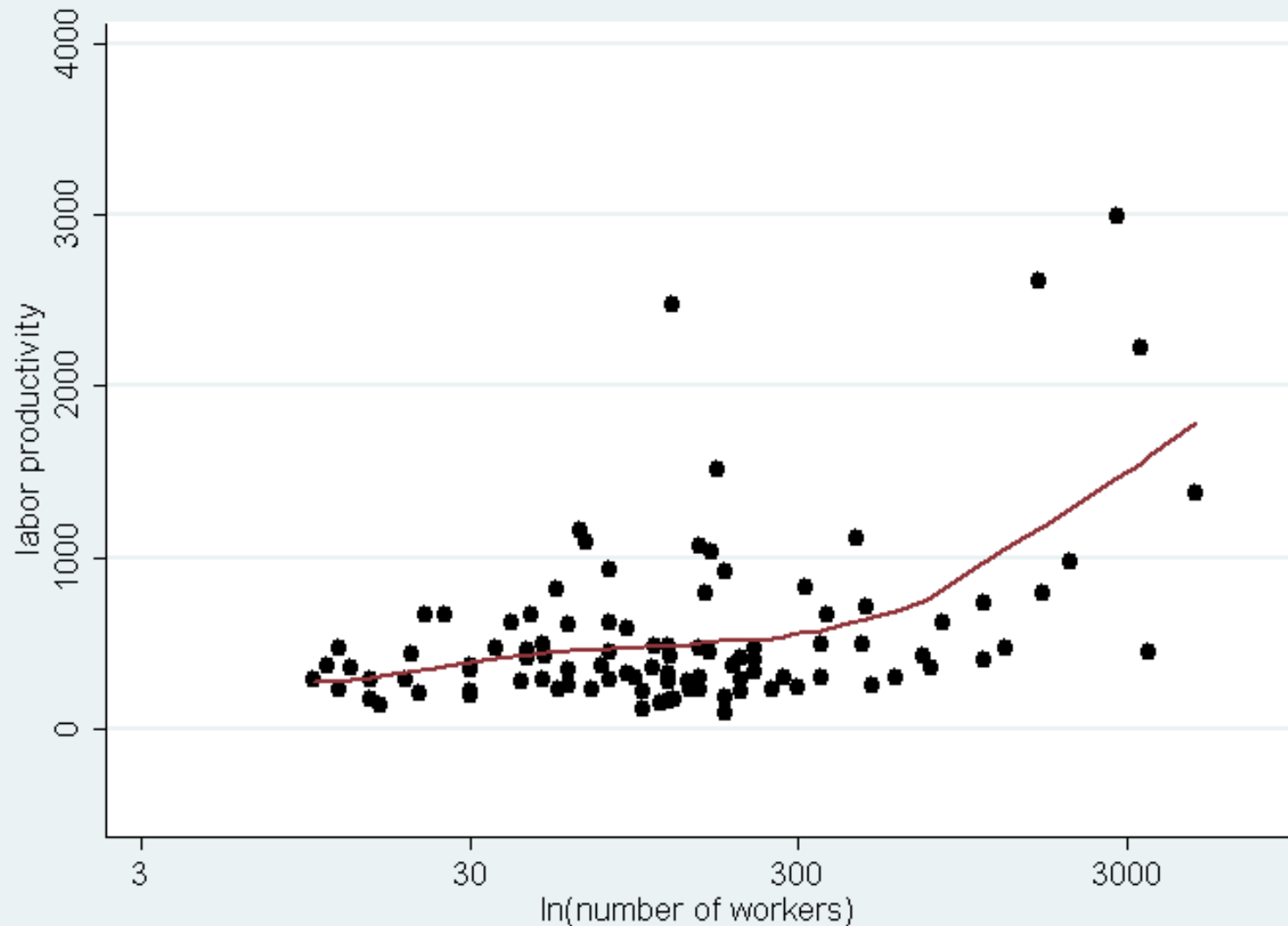
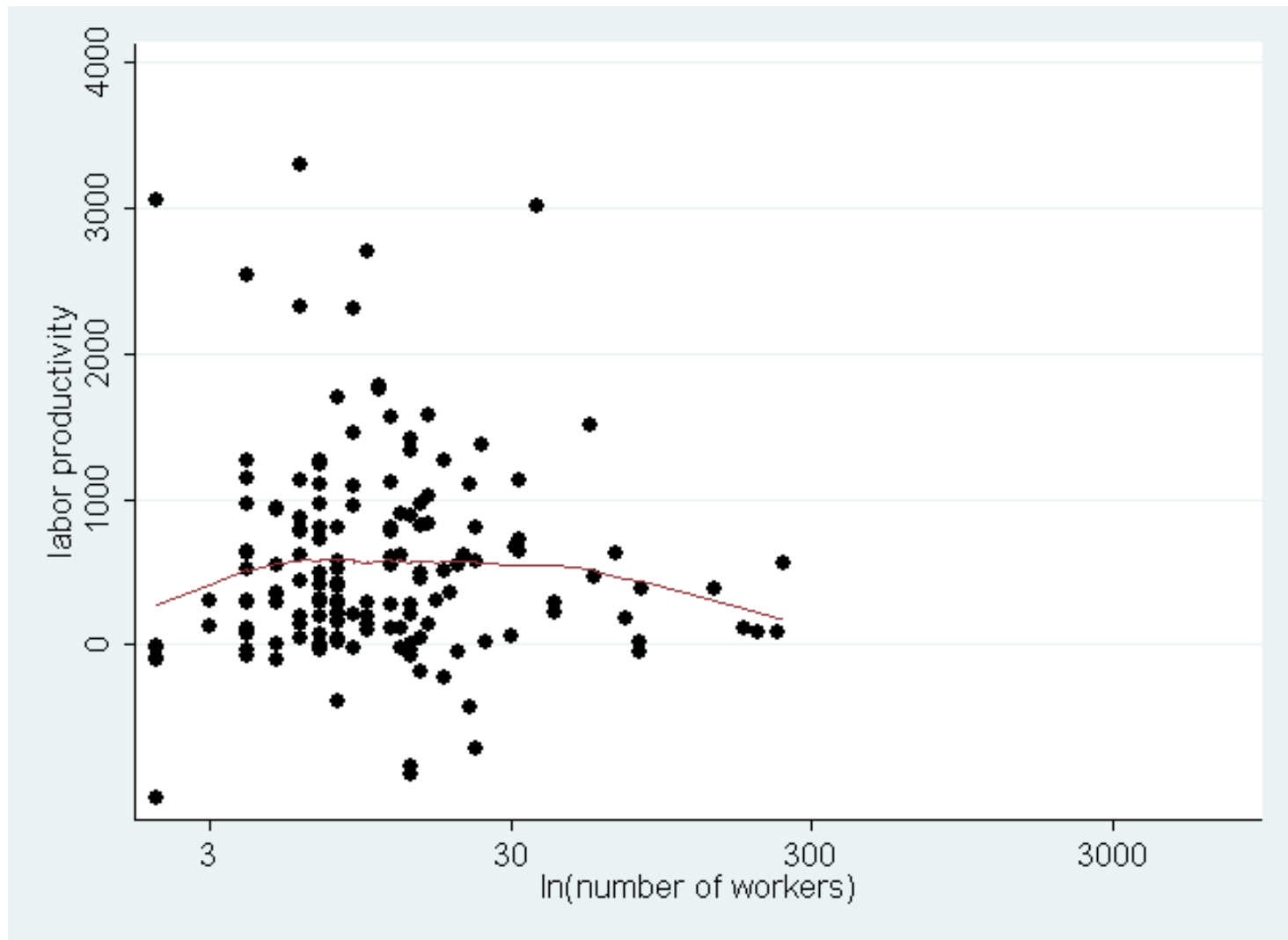


Figure 5. Example of stagnant cluster: Knitwear in northern Vietnam, 2009 (exporting but not learning)





Management Training Experiments

- Conducted management training experiments in Ghana, Kenya, Ethiopia (3), Tanzania, and Vietnam (2) in collaboration with the World Bank and JICA.
- Some randomized, some non-randomized
- Unique features of our study are
 - Focus primarily on stagnant clusters
 - Focus on small enterprises rather than the self-employed
 - Introduction to production management and quality control (KAIZEN or lean manufacturing management)
 - Design of training programs based on baseline studies

Major findings

Common findings

1. Participants (owners and managers) are very happy to learn about the basic management practices.
2. Many do not know even simpler things, such as the importance of keeping records of transactions and inventory and the importance of talking to their workers!
3. The majority of participants try to put knowledge into practice.

Somewhat new findings

1. Willingness to pay for the training program is initially low and increases greatly after the program.

Impacts on accounting-based indicators of performance

- There are cases in which impacts are not significant even at the 10 percent level.
- However, larger-scale training programs for relatively large firms have really strong impacts. See Bloom, Eifert, Mahajan, McKenzie, and Roberts paper (QJE, Feb 2013)

Table 3. Results of the KAIZEN Project Phase I in Addis Ababa (million birr)

	Treated	Control	DID	DID in log
Value added before	25.2	14.8		
After	69.6	20.7	t = 5.1	t = 4.7
VA/L before	0.18	0.10		
After	0.37	0.12	t = 4.3	t = 4.6
Gross profit before	20.5	12.5		
After	63.6	18.3	t = 5.0	t = 4.6

Impacts on accounting-based indicators of performance (continued)

2. Even our lower budget, short time (3 weeks, 5 days, 2 hours) training programs can have strong impacts
 - When the impacts are statistically significant, economic magnitudes of the impacts are so strong that you feel no need for cost-benefit calculation.
3. Impacts depend much on the fit of the design of training (contents, choice of instructors, etc.)



Cost-benefit

- Increase in value added due to the training may last for several years or longer.
- Costs are one-time costs (venue, rewards paid to instructors). The cost of making material cost may be a fixed cost and average cost will decline as you repeat similar training programs in various places.
- In addition, there are imitations or information spillovers. The social benefits are likely to be larger.

Spillovers

4. The extent of spillovers seems to increase with the magnitude of training impact, which seem in turn proportional to excitement.
5. Spillovers are not “stealing” but “giving”. They are more of “talking” than “eliciting”.

Table 4. Estimated impacts of discussion about training on **management score**

	Number of participants whom the respondent discussed about training		Number of participants whom the respondent knows	
	classroom	on-site	classroom	on-site
Dummy = 1 if the respondent is treated	1.403 (1.45)	0.099 (0.09)	2.872** (2.10)	0.573 (0.36)
(Treated = 1) × no of participants that ...	0.225*** (4.80)	0.104*** (2.94)	0.075 (1.55)	0.003 (0.09)
(Untreated = 1) × no of participants that ...	0.226* (1.68)	0.183** (2.31)	0.030 (0.54)	0.029 (0.44)

Although not shown here, many controls are included in the regression. Among them are the age, education background, ethnicity, and management score before the training (lagged dependent variable).

Table 5. Impacts of discussion about training on **profits** after the on-site training

	Number of participants whom the respondent talked to about training	Number of participants whom the respondent knows
Dummy = 1 if the respondent is treated	77.6 (0.09)	1,151 (0.96)
Treated = 1 \times no of participants that ...	59.1*** (2.71)	13.1 (0.63)
Untreated = 1 \times no of participants that ...	24.7 (0.40)	28.5 (0.58)

Although not shown here, many controls are included in the regression. Among them are the age, education background, ethnicity, and profit before the training (lagged dependent variable).

To be studied:

1 Long-run impacts

2 What should be taught in what manner?

3 Social benefits, or spillovers ...

- Most, if not all, indigenous industries are cluster-based. One of the advantages of clusters is information spillovers.
- Impact evaluation of training differs much from the assessment of effects of drugs.

4 Process of diffusion

- Institution building
 - Ethiopia KAIZEN Institute
 - Tanzania KAIZEN Unit (will be upgraded to Institute)
 - Zambia, Kenya, Ghana, Egypt, ...
- Evaluation of the training of trainers
- Evaluation of media campaign

Thank you

Figure 6. Another stagnant cluster: Metalworking in Kumasi, Ghana, 2005

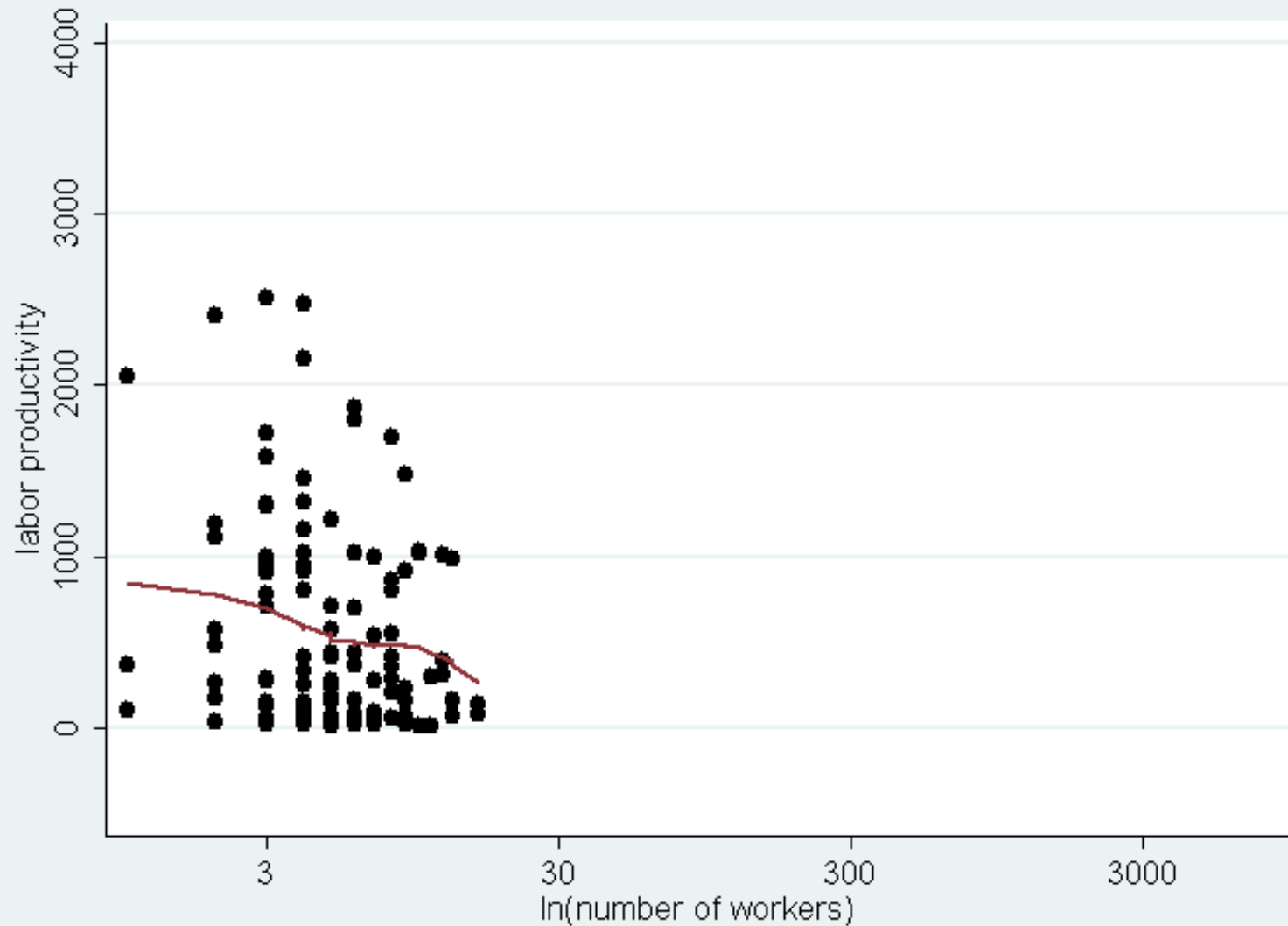


Figure 7. “Technological capability” and “Managerial capability”

