Cluster-Based Industrial Development: A View from East Asia

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Introduction

- Industrialization has been left out from the main agenda of development economics for the last few decades.
- Aim of my research
  - Explorations into the long-term process of cluster-based industrial development in order to identify appropriate industrial development strategies
- Completed and on-going case studies
  - East Asia, S. and SE Asia (Vietnam and Bangladesh), and Sub-Saharan Africa (Ethiopia, Ghana, Kenya, & Uganda)

List of Case Studies in East Asia

- **Garment:** (1) Japan, (2) China
- **Motorcycle:** (3) Japan, (4) China
- **Machinery:** (5) Machine tool in Taiwan,
  (6) Printed-circuit board in Taiwan,
  (7) Printed-circuit board in China,
  (8) Electric appliances in China
- **Most important finding:** Surprisingly great similarity in the process of industrial development among different industries in different countries

Table 2. An Endogenous Model of Industrial Development

Stage	Prior experience	Education	Innovation and imitation	Institutions and locations
Initiation	Traders/ Engineers	Low	Imitate foreign technology	Rural towns and suburbs
Quantity Expansion	Spin-offs Entrants with various backgrounds	Mixed	Imitate imitation Stagnant productivity Declining profitability	Rise of market transactions; Division of labor; Formation of industrial cluster
Quality Improvement	Second generation of founders, newcomers with new ideas	Very high	**Multi-faceted innovation**; Exit Emergence of large enterprises; Productivity ↑	Reputation & brand names; Direct sales; Exports; Sub-contracts or vertical Integration

Fig. 2. Number of Motorcycle Enterprises in Japan

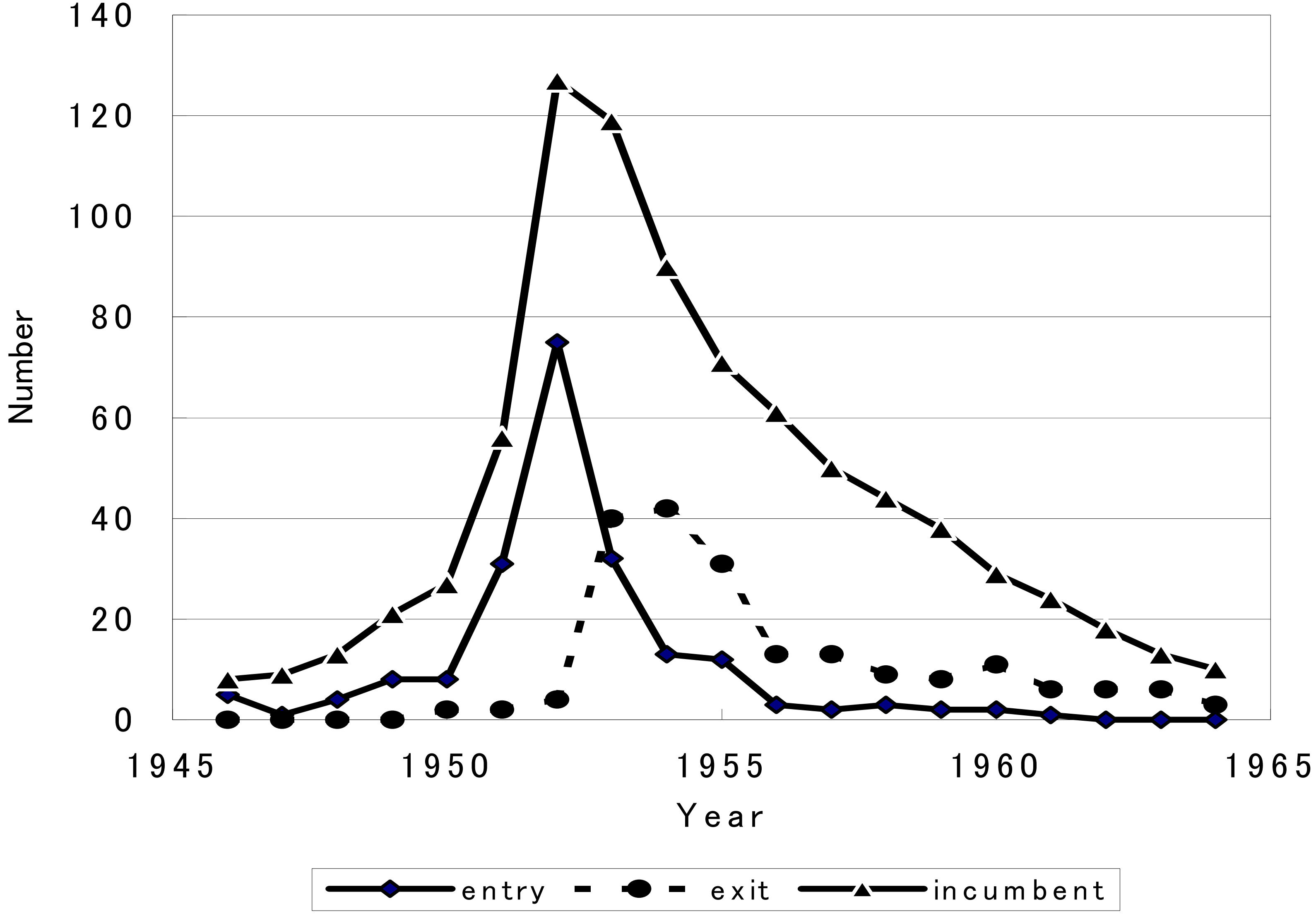


Fig. 3. Improvement of Quality of Motorcycle Engines

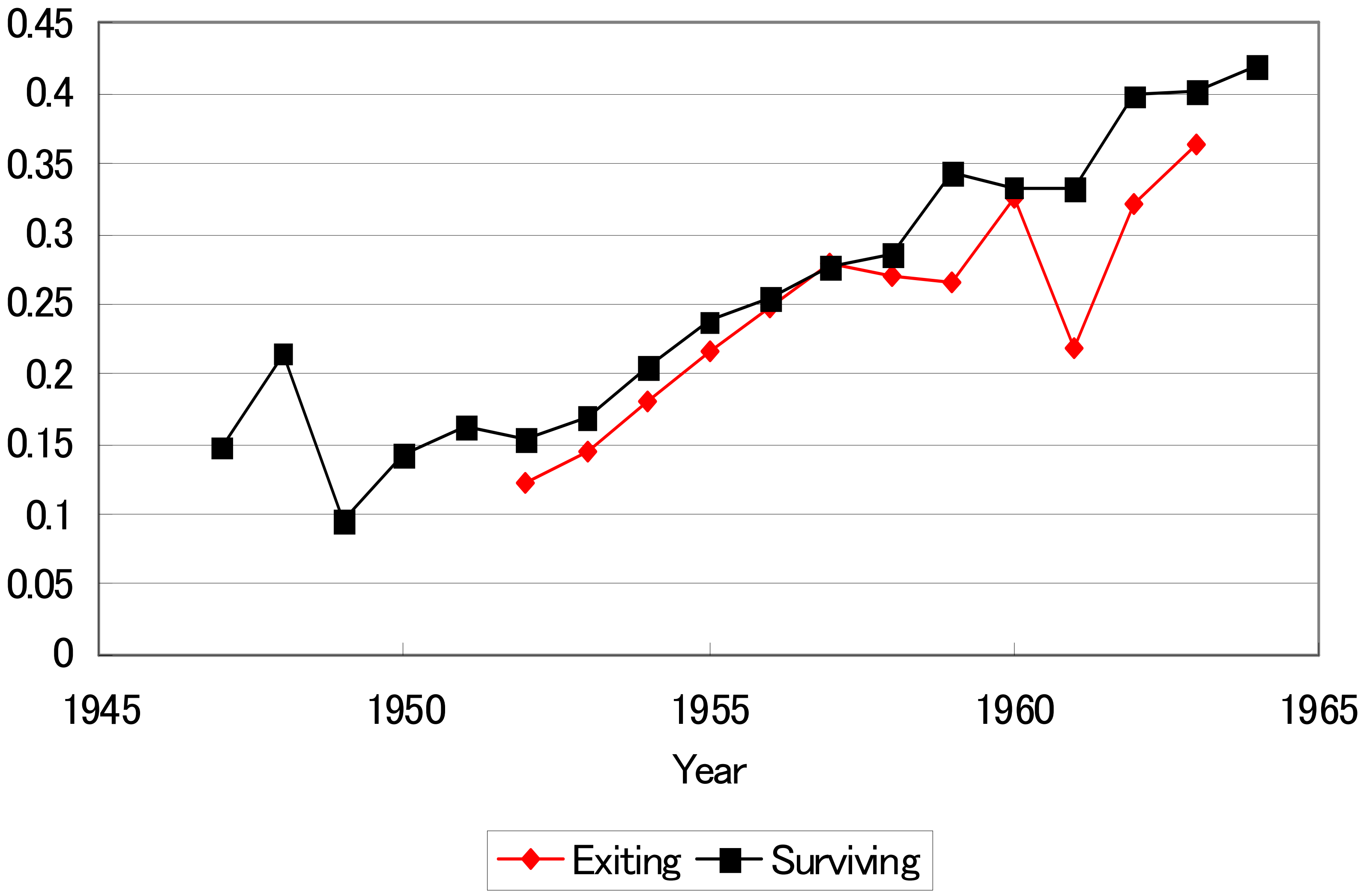


Table 3. Major Features of the Machine Tool Industry in Taichung

	Initiators	Early Imitators	Innovators	New Imitators
# sample enterprises	7	24	2	10
Year of establishment	1957	1979	1980	1994
Years before MT production	12.6	0.7	0	0
Prior job of founders (%)				
Machine tool enterprises	0	59	100	90
Other machinery enterprises	88	13	0	10
Schooling of founders (%)				
Primary	71	13	0	0
Secondary	0	12	0	0
High/vocational	29	54	0	60
University/graduate school	0	21	100	40
# parts-suppliers / enterprise	19.0	29.6	40.5	38.7

Table 4. Transition to Quality Improvement: The Case of Wenzhou

	1990	1995	2000
# sample enterprises	66	102	112
# independent enterprises	66	96	73
Real value added	1237	3758	36714
# workers	46.7	104.1	338.3
Ratio of engineers (%)	1.5	2.7	4.2
No. of subcontractors	0	2.8	34.8
Marketing channels (%)			
Marketplaces	23.5	20.4	3.6
Local Wenzhou traders	26.5	23.8	5.7
Agents	22.0	30.7	50.6
Own retail shops	9.5	12.6	27.1
Others	18.5	12.5	13.0

Agglomeration Economies Reconsidered

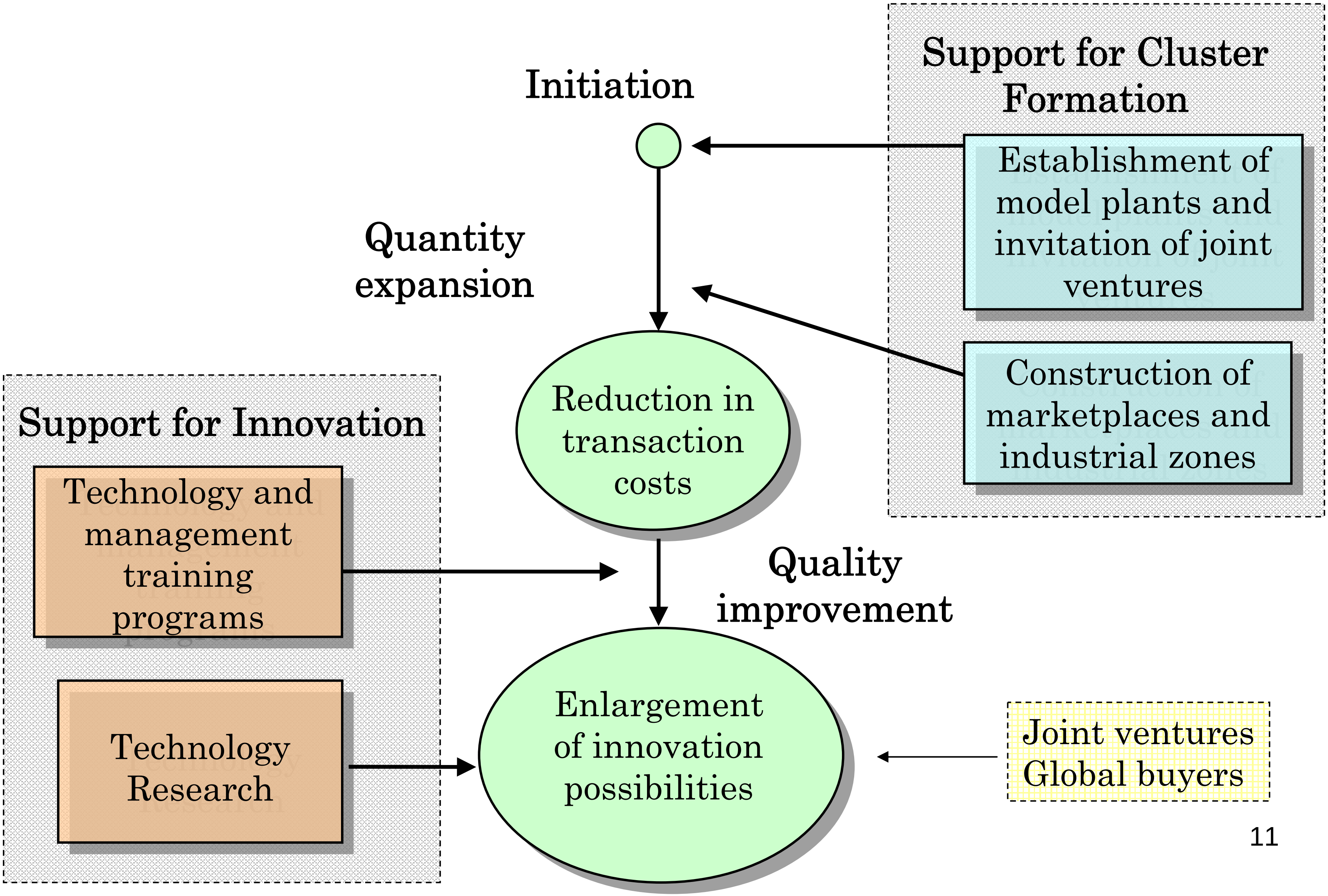
Conventional View: (1) Information spill-over (i.e., imitation), (2) division of labor among manufacturing enterprises, and (3) development of skilled labor markets.

Our View: Industrial cluster (1) develops market transactions among part-suppliers, assemblers, and merchants and (2) enlarges possibilities of multi-faceted innovations (or a new combination) by attracting various human resources (engineers, designers, merchants, and parts-suppliers).

Implications for Developing Countries

- While there are a large number of industrial clusters in LDCs including SSA, many of them remain in the quantity expansion phase.
- Recommendations: Transfer “ability to innovate” from advanced economies to facilitate the transition from the quantity expansion phase to the quality improvement phase by means of training of managers on technology, marketing, and enterprise management, while recognizing the importance of multi-faceted innovations.

Cluster-Based Industrial Development Strategy



Shoe Industry in Addis Ababa

- Began in the 1930s by Armenians
- 1,000 shoe companies operating in Addis, indicating that the quantity expansion has taken place.
- Strong indications that the quality improvement has just begun, even though the industry suffered temporarily from imports from China.
- Is Ethiopia a part of East Asia?

Shoe cluster in Addis Ababa

Small shoe factory in Addis

Headquarter of innovative shoe enterprise in Addis

Table 1. Number of Sample Enterprises, Employment, and Value Added by Enterprise Group

	SOEs	'69 – '95	'96 – '00	'01	'02	Top 5
Obs.	2	13	30	16	30	5
Employment						
2000	***630***	35	4.3	NA	NA	***85***
2004	***469***	34	7.6	7.2	4.0	***80***
Real Value Added (1,000Birr)*						
2000	***26,700***	555	56	NA	NA	***1,370***
2004	***10,200***	693	123	86	40	***1,873***

Table 2. Characteristics of Owners by Enterprise Groups

Year of establishment	’69 – ’95	’96 – ’00	’01	’02	Top 5
Age	40.5	31.6	27.8	28.2	33.6
Schooling years	11.8	9.2	8.1	8.6	*14.5*
% shoemaking experience	*84.6*	*96.7*	*100*	*96.7*	*80*

Table 4. Marketing Channels and Real Price of Men's Shoes in 2004, and Number of Business Trips Abroad in Last 5 Years by Enterprise Group

	SOEs	'69 – '95	'96 – '00	'01	'02	Top 5
Marketing channel (%)						
Export	3	2.7	0	0	0	*7*
Special orders	59	12.3	0.5	0	0	*27*
Own outlets	38	24.6	0	0	0	*17*
Other retailers	0	*22.7*	*33.3*	*25.4*	*28.2*	17
Wholesalers	0	*30.0*	*58.4*	*74.6*	*71.8*	32
Others	0	7.7	8.3	0	0	0
Price	75.5	78.2	59.5	55.8	45.0	*96.6*
# Trips	6.5	4.9	0.3	0	0	*12.4*