

Cluster-Based Development

- Why is it so important for developing countries?
- How can it be achieved successfully?

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Purpose

- We conducted a large number of case studies of the development of industrial clusters in Japan (2), China (4), Taiwan (2), Vietnam (2), Bangladesh (2), Pakistan (1), Ghana (1), Ethiopia(3), Kenya (2), and Tanzania (2).
- We found more similarities than dissimilarities in the pattern of cluster-based industrial development in different industries in different countries.
- The purpose of my presentation is to formulate the framework for the effective (cluster-based) industrial development policy based on the results of case studies in Asia and sub-Saharan Africa.

Fundamental question

1. Is it possible and desirable to skip industrialization (i.e., the development of manufacturing sectors) and develop modern IT-based service sector?
2. What is happening in India and the Philippines where IT-based service sector is rapidly developing is not?
 - Answer to 2: Increasing income inequality without reducing the incidence of poverty.
 - Answer to 1: In developing countries, labor-intensive industrialization is needed to provide ample employment opportunities to achieve equitable development.

Industrialization \approx Cluster-based development of manufacturing sectors

Most, if not all, successful industrialization is cluster-based not only historically but also now.

- Industrial revolution in UK: Manchester (textile), Birmingham (steel), and Glasgow (ship-building)
- Many clusters in the US: Philadelphia (textile), Silicon Valley (IT)
- East Asia (Japan, Taiwan, and China): Ota ward in Tokyo (metalwork), Wenzhou in China (many light industries), Taiwan (all industries)
- Bangladesh: Dhaka (garment, pharmaceutical industry)
- India: Bangalore (IT), Agra (shoe), and many others

What is Industrial Cluster?

Definition

Geographical concentration of enterprises producing similar and closely related products in a relatively small area (e.g., assemblers and part-suppliers).

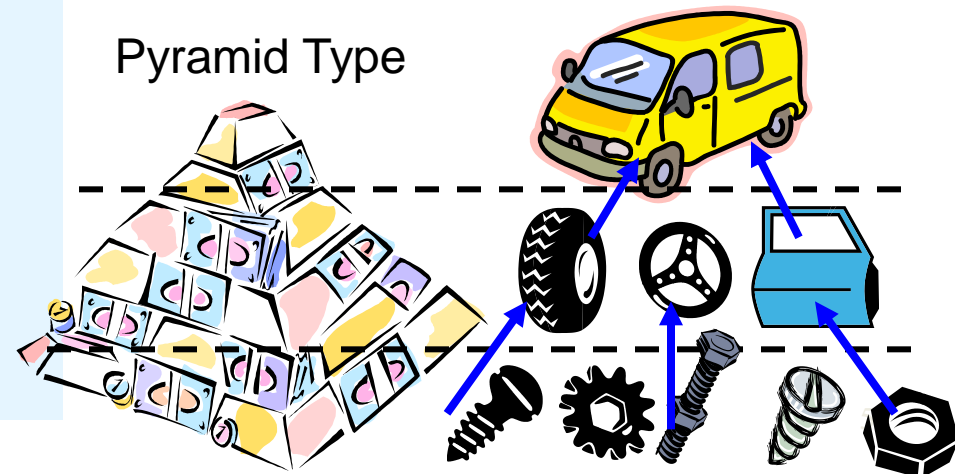
Type 1

- Cluster that characterized by the dominance of SMEs.

We focus on Type 1, because it is common in developing countries.

Type 2

- Pyramidal type in which there are one assembler, many sub-contractors, and so many sub-sub-contractors (e.g., Toyota).



Why is industrial cluster so important?

- Clustering is the key to successful industrial development because of agglomeration economies:
 - a) **Information spillovers**
(typically imitation)
 - b) **Specialization and division of labor among enterprises**
(low transaction costs due to proximity of transacting partners)
 - c) **Development of skilled labor markets**
(usually through poaching)
 - d) **Availability of useful human resources for innovations** (engineers, designers, traders, etc.)
- If an enterprise is located outside the cluster, it will find it difficult to learn from other enterprises, to sell/buy parts and recruit workers with desired skills.

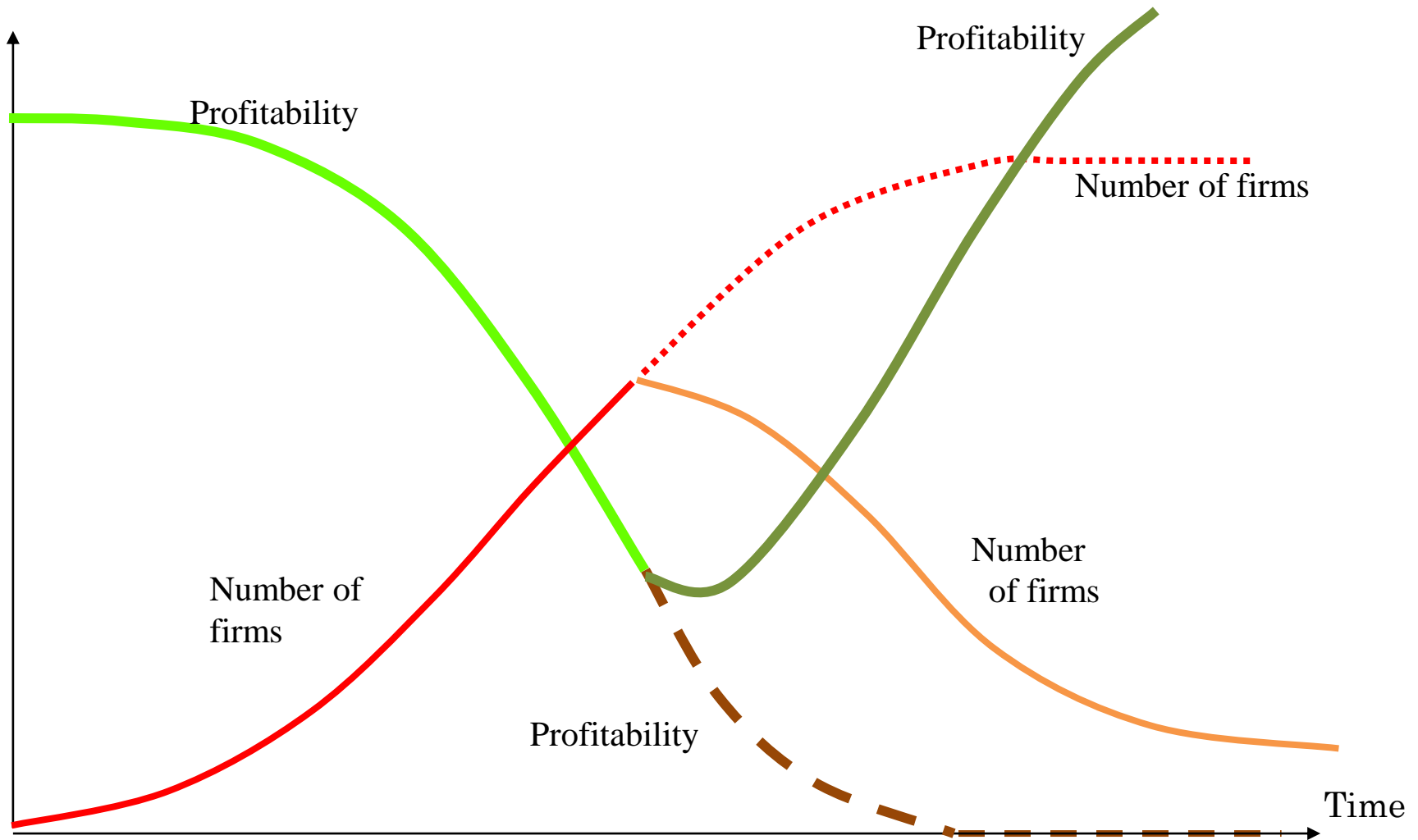
How is the cluster formed?

1. Pioneering entrepreneurs initiate new business by producing imitation of imported products.
2. Pioneers earn sizable profit, even though they produce low-quality products for domestic markets.
3. High profit attracts a swarm of followers, who are often spin-offs.
4. In this way, the cluster is formed in which SMEs produce similar products and sell them at the same domestic markets.

Typology of industrial clusters

1. Survival cluster: Sizable entrepreneurial profit → Entry of imitators (particularly spinoffs) → Formation of industrial cluster with a large number of small enterprises producing low-quality products → Declining prices and profits → Stagnation (cases in SSA except the shoe industry in Ethiopia)
2. Dynamic cluster: Declining profit → multifaceted innovations → quality improvement, increasing profit, firm size expansion, exit of non-innovative firms, and initiation of export → congestion

Figure 1. An Illustration of Development Patterns of Industrial Clusters



Key to success is multi-faceted innovations

- a) First of all, the quality of products must be improved by employing engineers, designers, and skilled workers and by using high-quality materials and parts.
- b) Since consumers do not immediately perceive the quality improvement, innovative enterprises must convey the quality information by establishing brand names, opening own retail stores, and so on.
- c) Since improved products are differentiated products, innovative enterprises need special parts, which embody new ideas. To protect new ideas, they must develop trust and establish long-term sub-contracts with parts-suppliers.
- d) Innovative enterprises should embark on exports, expand production, absorb non-innovative enterprises, control quality of products, and manage a large number of workers.

Not only technology but also management is extremely important

- Marketing/branding
- Subcontracting
- Quality control
- Labor management
- Organizing large-scale production
- Exporting

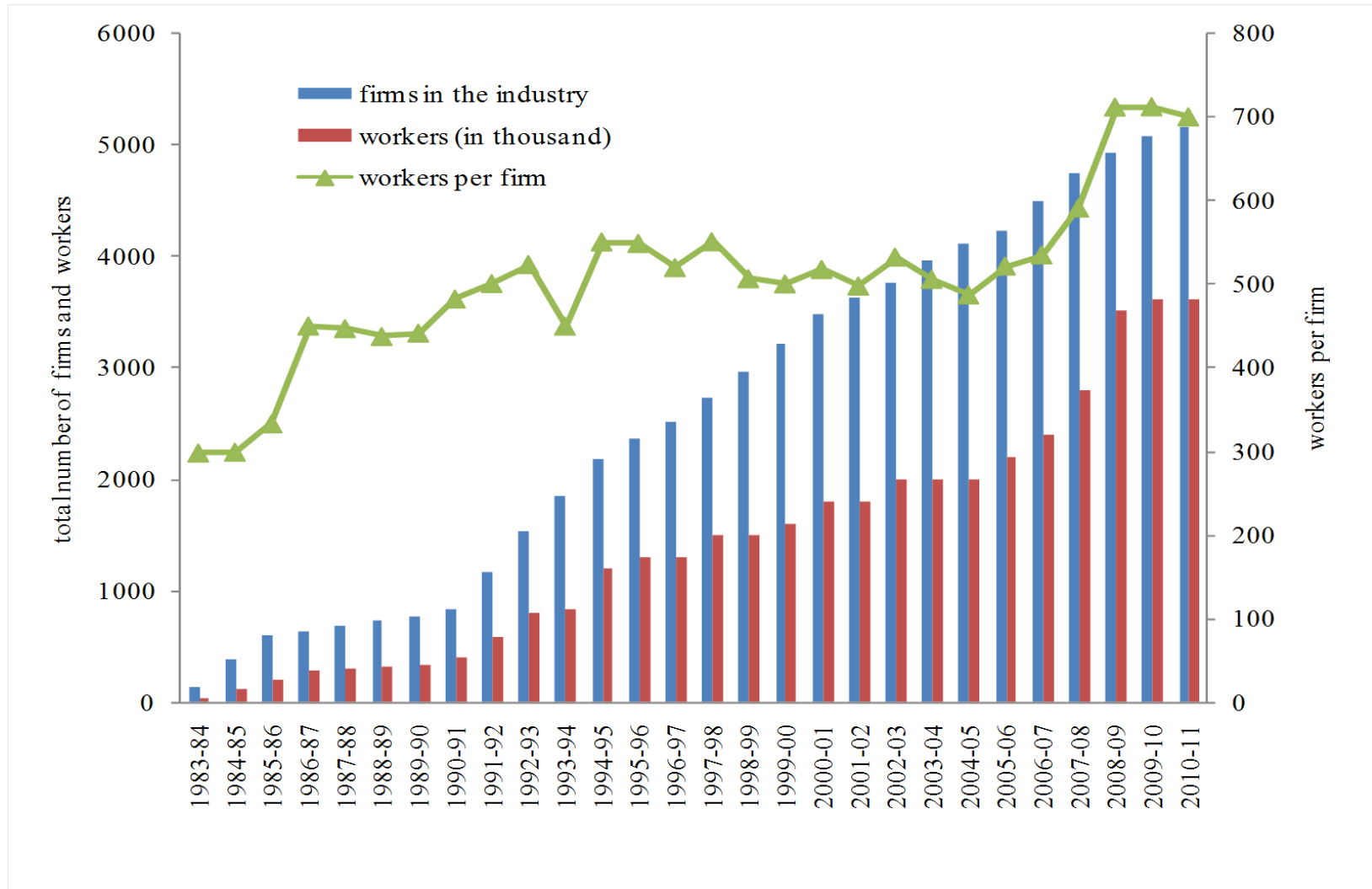
This is consistent with the finding of the recent literature that management practices are closely related with enterprise performances.

Sources of multi-faceted innovations

- Education as only educated entrepreneurs can carry out multi-faceted innovations
- Ability, experience, and attitude to “learn from abroad”

“Learning from abroad” is the essence of East Asian model of development: Recognition of this is weak in India and sub-Saharan Africa (SSA), but surprisingly strong in Bangladesh.

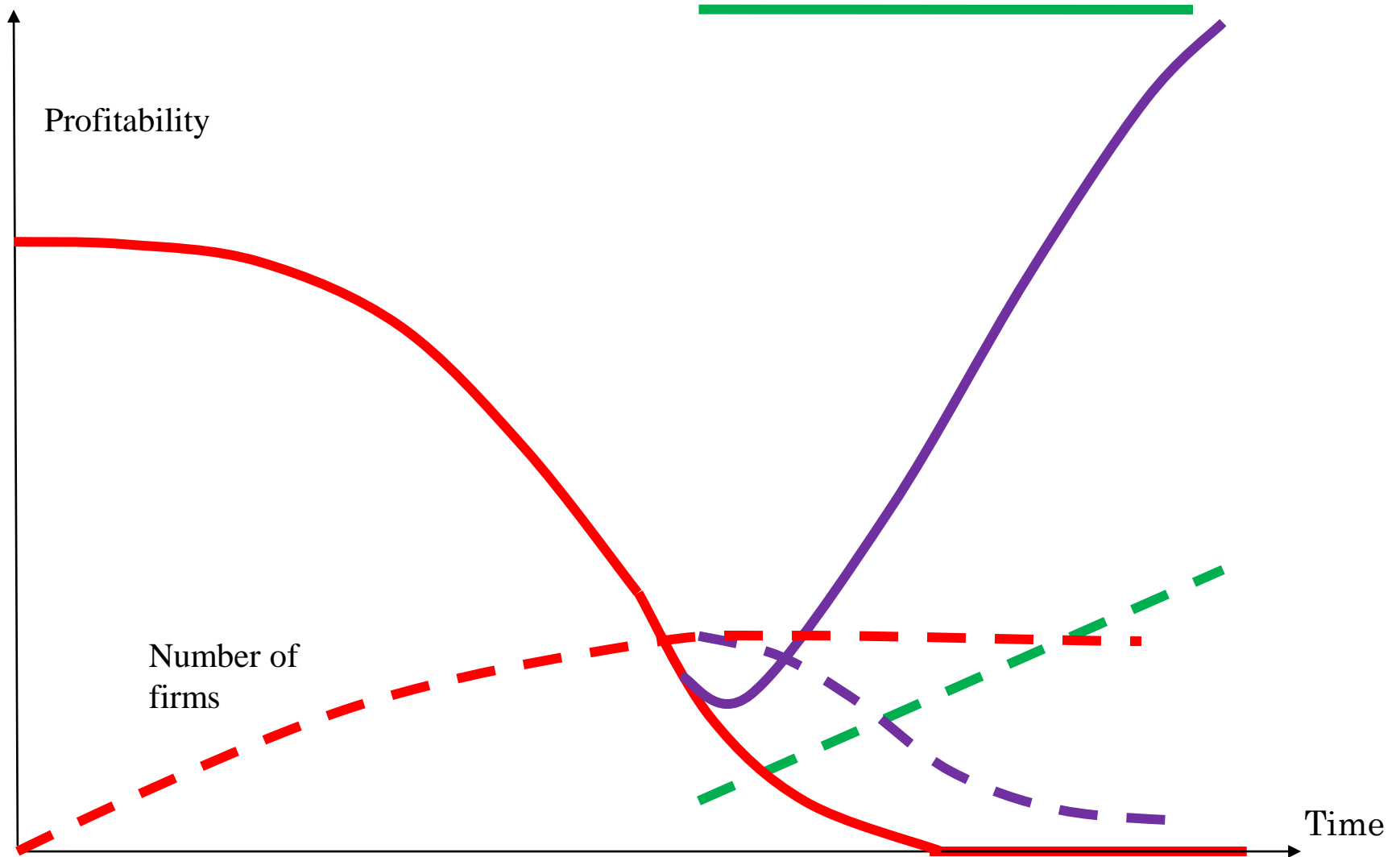
Fig. 2. Lessons from the development of the garment industry in Bangladesh



Lessons from Bangladesh (continued)

- Learning from abroad: Daewoo company in Korea trained 130 young Bangladeshi who graduated from universities in Korea for 8 months about production, management, and marketing in 1979.
- In a few years, 130 workers quitted and initiated new garment companies and trading houses.
- Because of the intensive training, the quality of products was high from the beginning and they were all exported.
- Recognizing the importance of training, managers and workers in Bangladesh continued to learn from abroad.
- No Daewoo-type training afterwards: Training in Korea was mistake of Daewoo but extremely profitable investment for the economy as a whole.
- *Thus, there is need for the governments or international organizations to offer intensive training programs.*

Figure 3. An Illustration of the Bangladesh Model (see Green Lines)



We found the garment cluster in Dar es Salaam quite promising!

- Like the garment cluster in Bangladesh, the garment cluster in Dar es Salaam was born in the 1990s by the *training* offered by UNIDO, which indicates that the training is powerful tool for industrialization.
- According to our estimate, there are as many as 700 garment workshops in Dar. Moreover, average schooling of entrepreneurs is almost as high as 11 years. A few enterprises export to Europe.
- But enterprises are generally small with the average size of 5 workers. Moreover, this cluster is not growing.
- In order to stimulate the development of this cluster, we have offered the KAIZEN management training. My colleague, Prof. Sonobe, will talk more about this.

Imitation, Innovation, and Industrial Policy

1. Imitation is desirable as new idea is widely used in the society.
2. But imitation reduces incentives to innovate because private benefit of innovation is smaller than its social benefit.
3. That is why, innovation must be supported by the industrial policy.

The Case for Management Training

- Increasing recognition of the importance of managerial human capital and management practices in firm performance
- Ignorance of the value of managerial human capital and management practices by owners and managers of SMEs in SSA.
- *Conclusion: We propose to provide management training to stimulate the multi-faceted innovations.*

Is management training enough?

- Technology is also important
- Credit is also important
- Infrastructure is also important

Then why do we emphasize the management training?

- Under-evaluation of the importance of management.
- The result of management training can be used to screen promising and non-promising entrepreneurs.
- The government should provide the support only for promising entrepreneurs.

There are many other potentially dynamic clusters in SSA

- Leather shoe cluster in Addis Ababa
- Metalwork cluster in Nairobi
- Metalwork cluster in Kumasi
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To our knowledge, the development of such cluster has not been supported by the industrial policy.

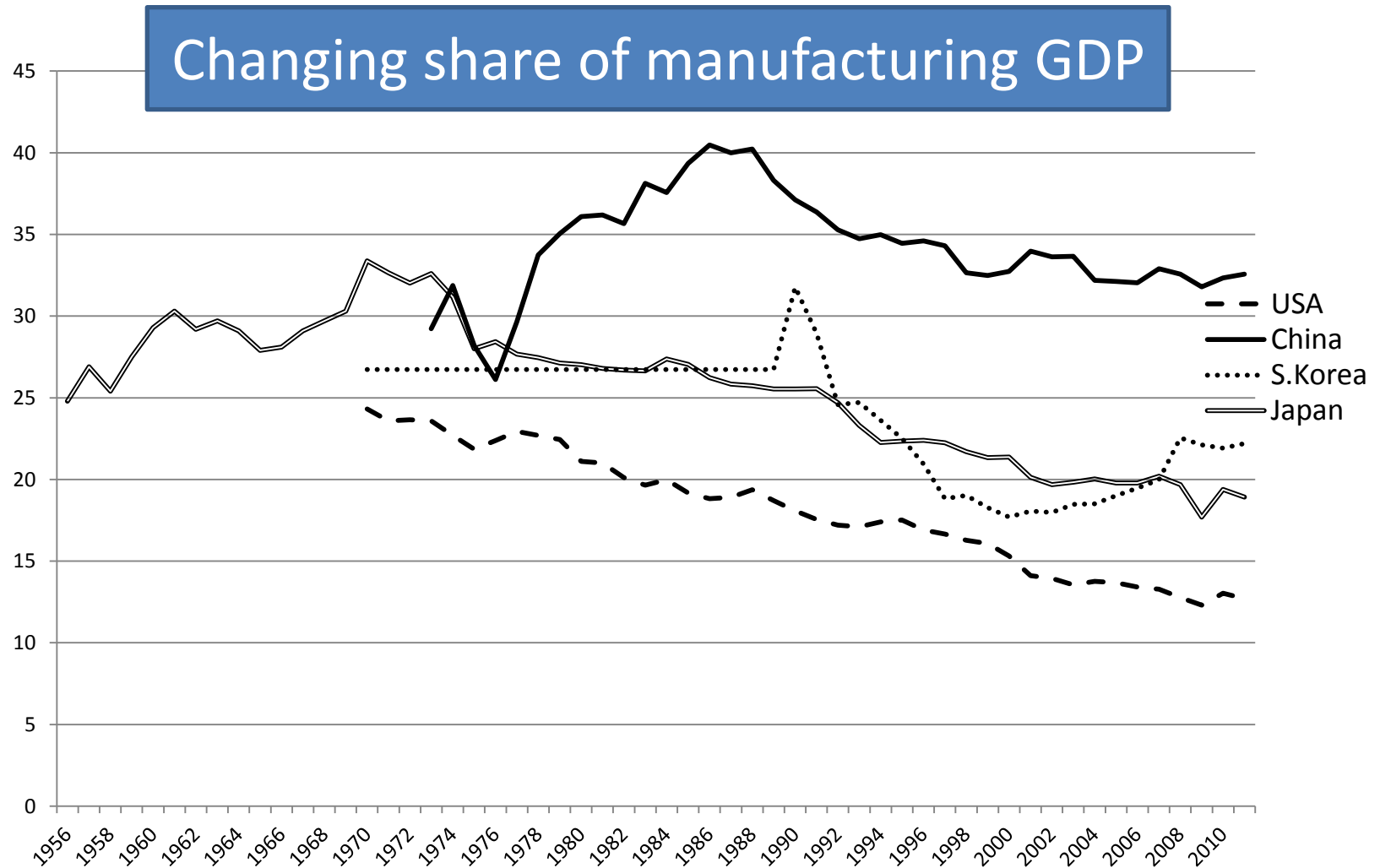
Terribly bad road in shoe cluster in Addis Ababa



Small Shoe Workshop in Addis Ababa



Figure 4. A Chance in a Million for Industrialization in SSA NOW



At present, the manufacturing industry is massively moving from China to somewhere else.

- GDP share of the manufacturing industry decreases as income increases (see the cases of the US, Japan, and Korea).
- Now in China, GDP share of the manufacturing industry began decreasing. In fact, it loses the comparative advantage in light manufacturing industries.
- Potentially, countries in South Asia and SSA are competing to attract such industries.

Recommendations for Industrial Policy

- Survival or stagnant clusters → Need to learn from abroad
 - Government should provide management training as well as technological training to stimulate multi-faceted innovations
- Successful multi-faceted innovations → Increased demand for credit to expand the size of operation, purchase new machineries, and relocate to industrial zones with improved infrastructure
 - Government should provide low-interest loans and space in industrial zones only to *innovative and, hence, promising firms*.

Thank you very much
for your attention