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Virtual Conglomerate as a Production Mode: China's Industrial Cluster Development

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Clusters of Small Businesses in China as “World Factories”

- 72% of China’s growth was due to the domestic private sector (Wei and Zhang, 2009)
- Most small private firms clustered together geographically, and are highly **coordinated** within each cluster that collectively they have formed many “world factories”
- 62% growth in the number of firms in China during 1995-2004 was due to clustering (Long and Zhang, 2009)
- 14% of China’s total industrial GDP growth during 1995-2004 was due to these firms (Long and Zhang, 2009)

A typical ‘world factory’ of this sort

- Thousands of specialized family owned “firms” cluster in a town which focuses on a few products
- The town government coordinate strategic matters through providing infrastructures (physical, technical and admin)
- Thousands of merchants coordinate daily operations through subcontracting with dozens of other small “firms”
- Each such a town is a “world factory”
 - Datang Town: 6 billion pairs of socks per year
 - Shengzhou Town: 40% of the world's neckties
 - Qiaotou town: produced more than 70% of the buttons for clothes made in China
 - Songxia town: 350 million umbrellas every year
 - Puyuan Town: over 500 million cashmere sweaters; 60% of China’s market

A Cluster as a virtual conglomerate

- These clusters are purposely organized by town governments and many transactions within a cluster are non market
- The town government is like the “headquarters” of a conglomerate, which coordinates strategic matters
 - Facilitate large number of small private firms and deepen division of labor among them
 - Facilitate logistics and other infrastructures
 - Provide technical training
 - Maintain quality within the town: reputation
- The merchants who coordinate daily production operations are like “divisions” of a conglomerate
- Such a conglomerate is virtual
 - The ownership is distributed among thousands of families

The Virtual Conglomerate and the Boundary of the Firm

- Conventional view: a firm is a set of assets with a common ownership, which determines a concentrated control rights
 - The coincided common ownership and concentrated control rights coordinate non market transactions within a firm
- How about a virtual conglomerate?
 - It does not have a common asset ownership: not a firm?
 - It has concentrated control rights (exercised by town government and merchants), which coordinate large amount of non market transactions: similar to that of a firm
- What is the nature of the firm? (Coase, 1937): ownership structure or control rights, which matters more?
- What is the boundary of the firm (Coase, 1937): If a virtual conglomerate is regarded as a firm, then what is the boundary of the firm? How about a county? How about a municipality (prefecture)?

Benefits of the virtual conglomerate than integrated companies

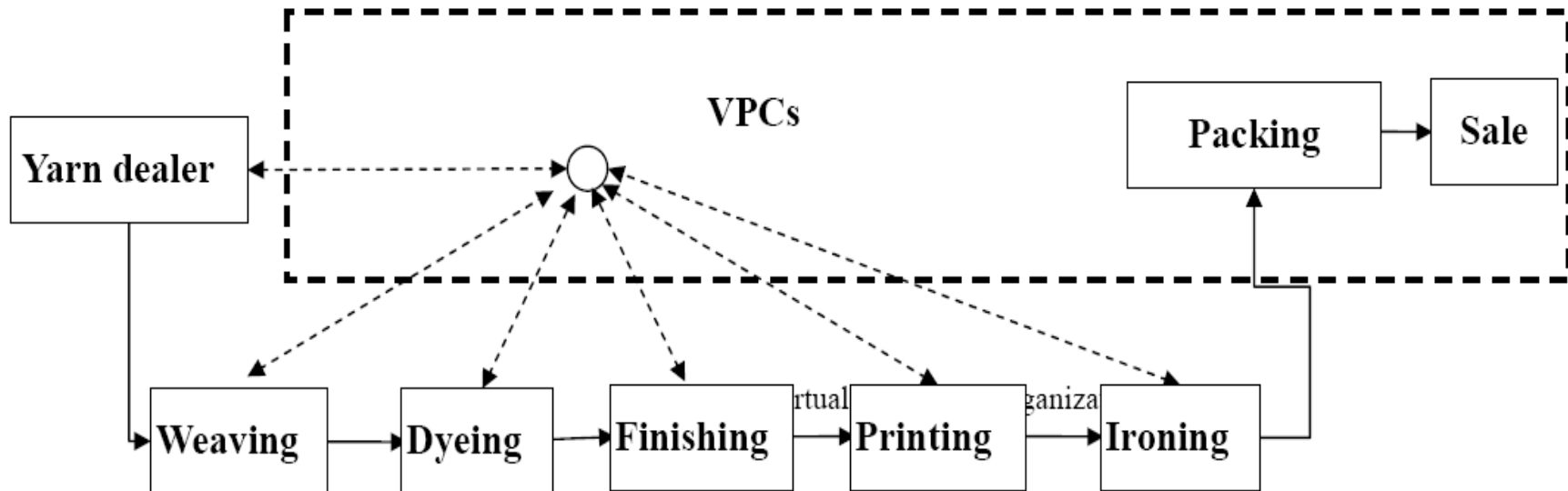
- Most of the assets are owned by individuals
- Individual entrepreneurs make decisions on daily operations
- Compared with hired employees in integrated firms individual entrepreneurs
 - Have stronger incentives to work hard, to take risks and to take initiatives
 - Enjoy creativities, flexibilities and adaptabilities for market changes
- It is beneficial in areas where constant entrepreneurial actions need to be taken
- The 'headquarters' does not have a responsibility for risks taken by individual entrepreneurs: harder budget constraints than an integrated firm

Benefits of the virtual conglomerate than conventional small firms

- The virtual conglomerate creates huge scale economy, while keeping each workshop small
- With numerous similar workshops are clustered in a virtual conglomerate, the competition among them make them more productive and also help to solve incentive problems
- The fine division of labor and prevalent using trade credits among workshops within the virtual conglomerate lower entry barriers substantially

Structure of a Virtual Conglomerate

- Thousands of **workshops** clustered together sharing infrastructures of the virtual conglomerate
- Every workshop is specialized in one task to make it efficient
- Dozens of **virtual plants** operate in the virtual conglomerate
 - They are competitors in the same market but share infrastructures of the conglomerate
- Each virtual plant consists of a group of specialized workshops; they are coordinated by a lead entrepreneur and work together closely



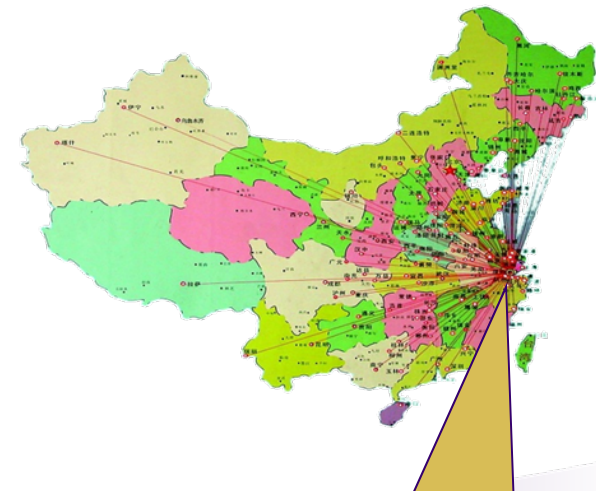
Operation of a virtual plant

- A group of workshops work closely as a 'virtual plant'
 - They located nearby to each other
 - They know each other well
 - The working relationship among them is an entrepreneurial network
 - They are closely coordinated but no written contracts between them
- Often a merchant is the leading entrepreneur in coordinating production processes within the virtual plant
 - She provides designs and receive orders
 - She purchases raw materials and deliver them to the subcontracting workshops;
 - She does packaging and quality inspection
 - She sends the final products to the conglomerate's logistics center

Puyuan as a virtual conglomerate

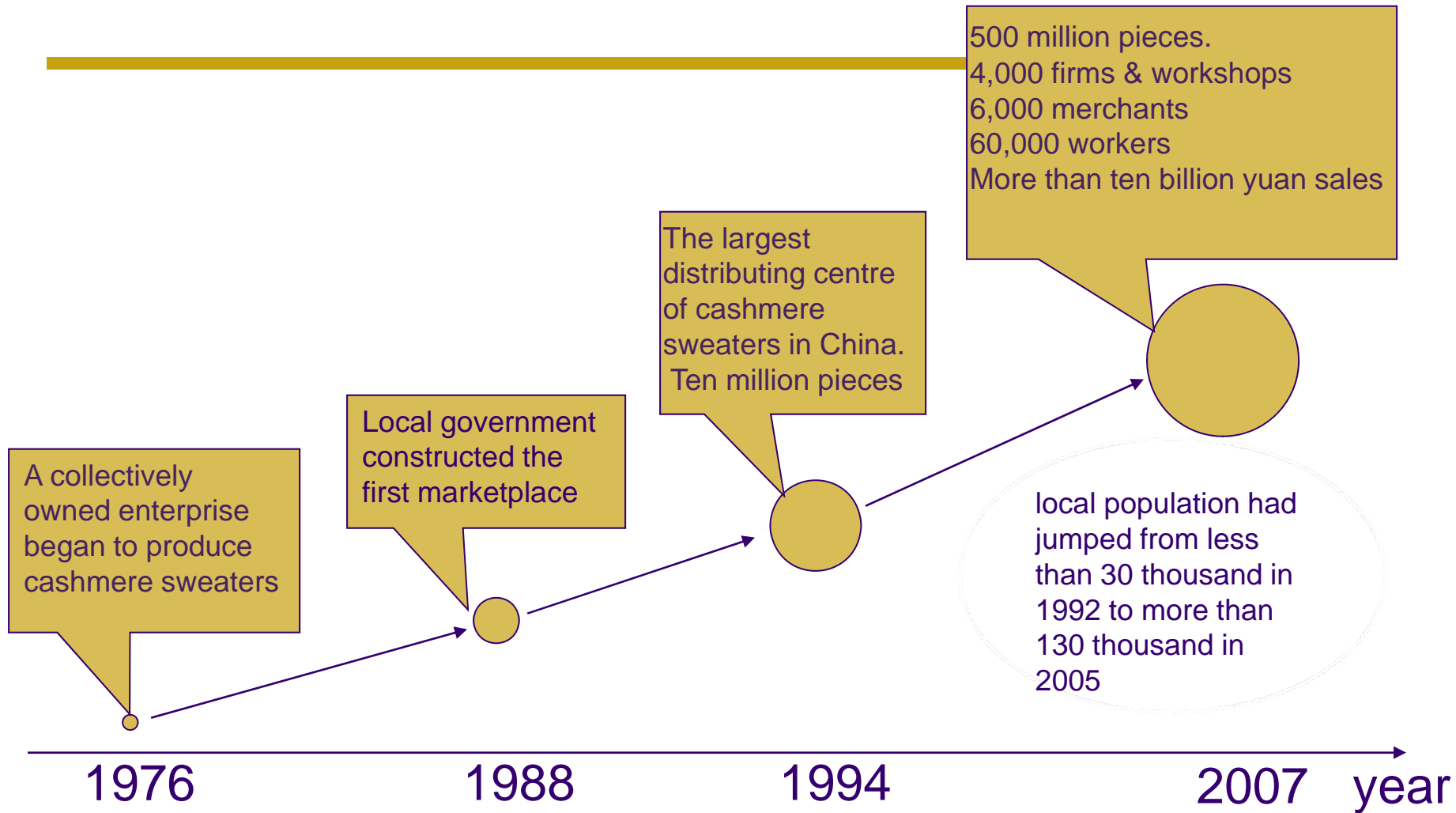
- Puyuan town is the largest cashmere sweater production center in the world
 - Produce over 500 million cashmere sweaters each year; 60% of China's market
 - With 3,900 family owned specialized workshops and 6,000 trading shops
- Every workshop is specialized in one task:
 - Designing, weaving, finishing, dyeing, printing, ironing, packaging, etc.
- A virtual plant: a group of specialized workshops closely worked together coordinated by a lead entrepreneur
 - Sweater merchants as virtue production coordinators
 - Design and produce cashmere sweaters from yarns
- A virtual conglomerate: thousands of workshops clustered together sharing infrastructures
 - The town government provides many important public goods and services, fostering the clustering development

The Location of Puyuan



Zhejiang Province

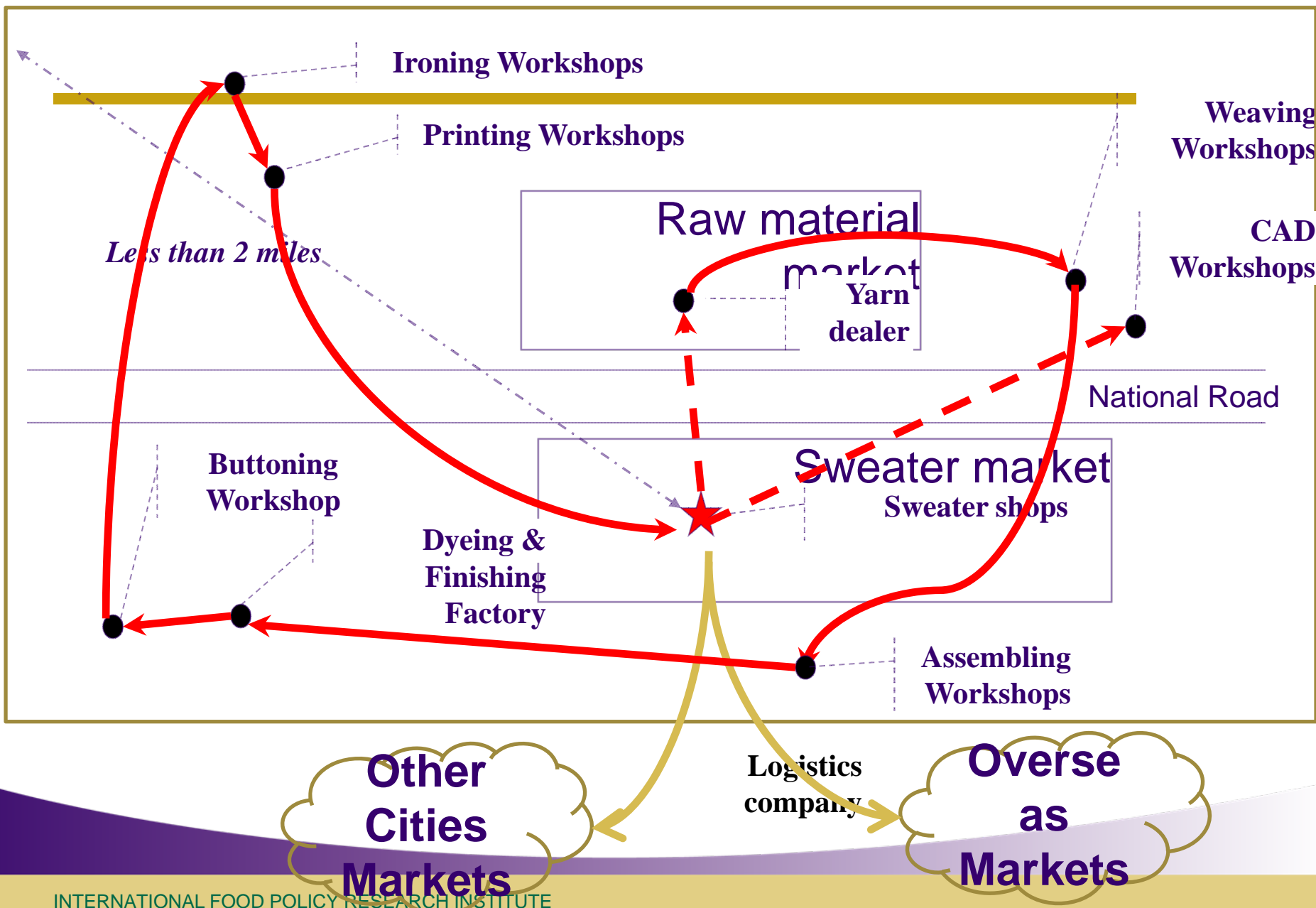
History of Puyuan Cashmere Sweater Cluster



Production Organizers



The Putting-out System



Market



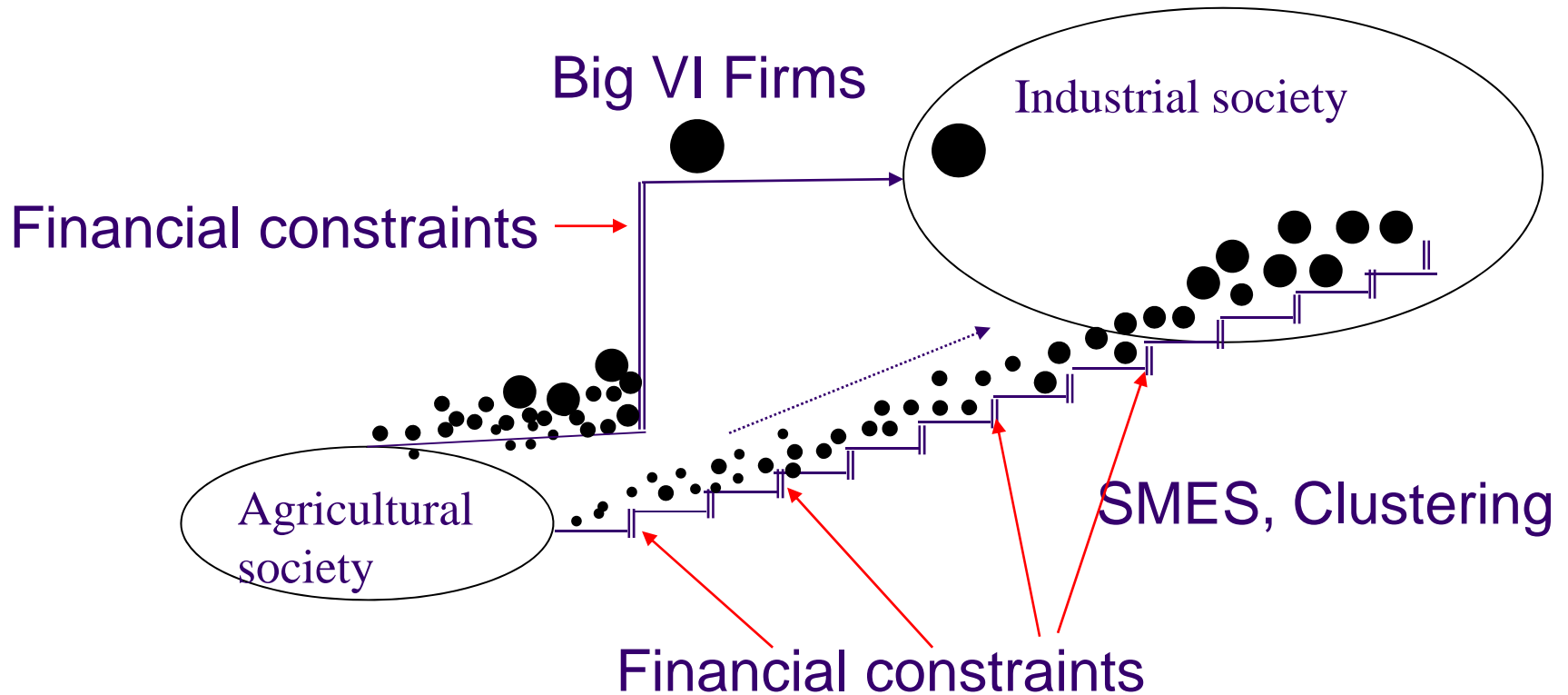
Family workshops



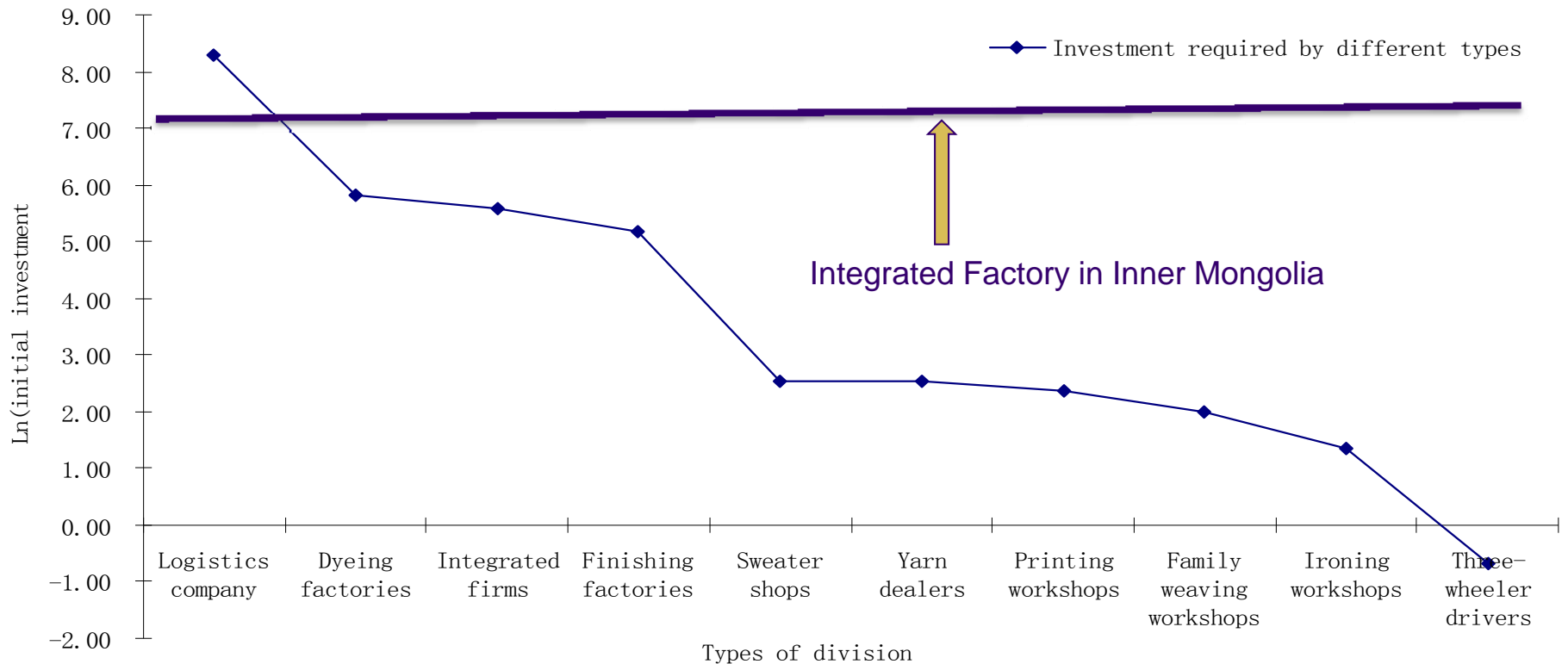
Individual Workers/Entrepreneurs



Financial constraints and advantages of small firms



The Average Investment for Different Step of Production



Does Dispersed Production Mode Incur Higher Transaction Cost?

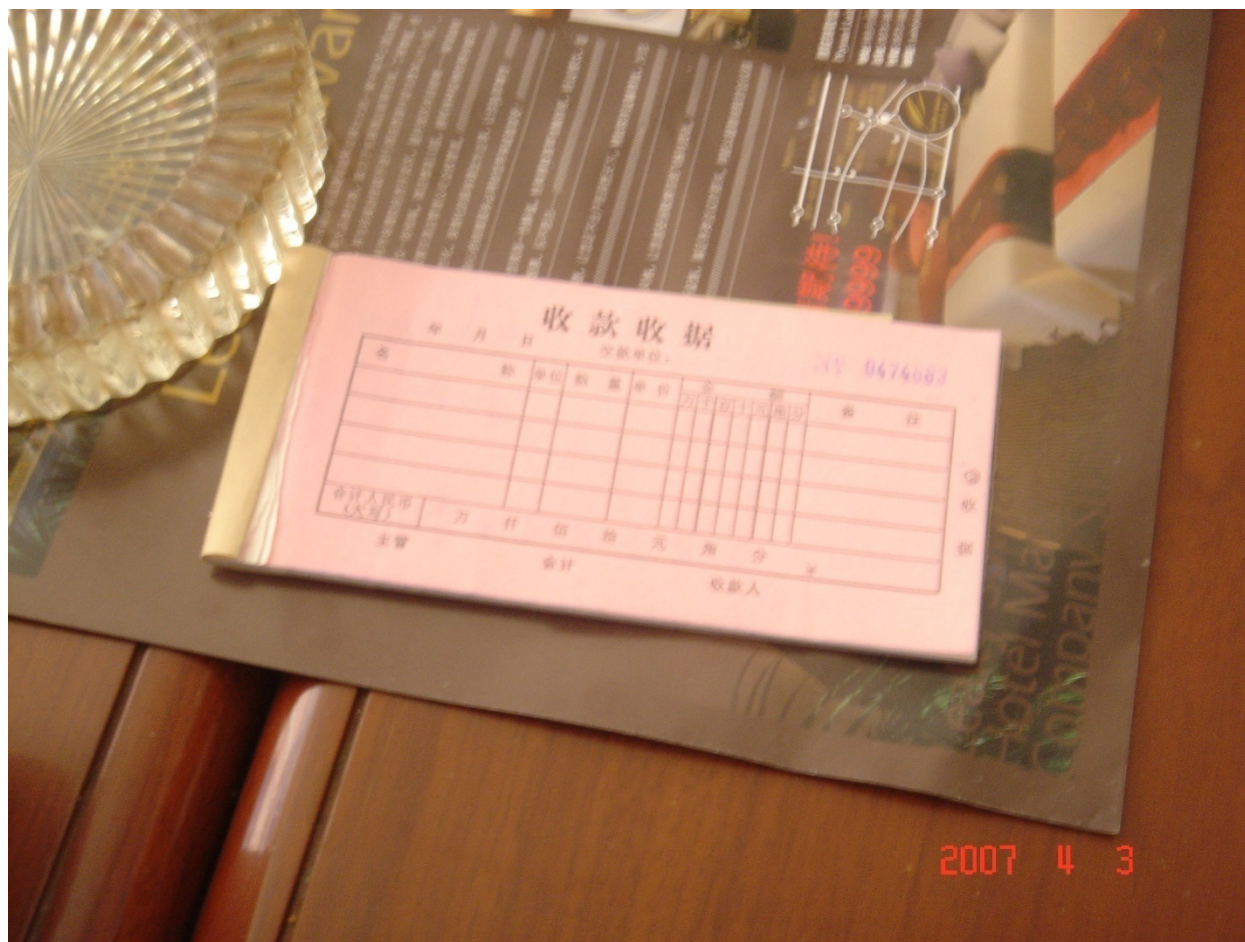
- Not necessarily for three reasons.
 - When producers stay in a geographically proximate region, information flow is much easier. Words about bad behavior spreads fast.
 - The opportunity cost of committing dishonest behavior is high because of the nature of asset specificity in a cluster (the asset, skills and network are not portable to other places).
 - Since they locate nearby to each other, they know each other well. Repeated transactions help form trust.

Source of Starting Capital

	Average amount (10,000 yuan)	Founder (%)	Relatives or friends (%)	Banks (%)	Others (%)
Yarn dealers	12.45	83.21	16.79	0.00	0.00
Family weaving workshops	7.31	81.46	15.64	2.90	0.00
Dyeing factories	340.07	47.50	31.87	20.63	0.00
Finishing factories	177.82	29.91	34.14	25.68	10.27
Printing workshops	10.60	77.36	22.64	0.00	0.00
Ironing workshops	3.83	88.26	11.74	0.00	0.00
Sweater shops (VPCs)	12.74	80.58	12.47	6.95	0.00
Three-wheeler drivers	10.54	63.28	36.72	0.00	0.00
Logistics company	4000.00	50.00	0.00	50.00	0.00
Integrated enterprises	263.84	59.59	19.28	21.13	0.00

2-month salary

The entrepreneurial firms are closely coordinated but no written contracts between them



Sample receipt

Puyuan town government as headquarters of the virtual conglomerate: Managing Crises and Provision of Public Goods

Local governments facilitate the growth of conglomerates by providing necessary public goods in response to various crises:

- **Roadside sweater stands blocked traffic:**
 - Built cashmere sweater marketplaces (with roof) through private-public partnership to formalize the informal business, which attracted large number of small private firms and deepened division of labor among them
- **Fights among different private logistic centers and transport companies:**
 - Set up a unified logistic center by re-organizing dozens of private logistics and transport companies and auctioning out the rights of transport routes
- **Increasing crimes as a result of more merchants and migrant workers:**
 - Increased street security patrol to ensure a safe environment
- **A large fraud by a woman trader using fake name:**
 - Established information system to link hotels with police stations to check fake Ids to chase out cheaters

Managing Crises and Provision of Public Goods

- Reputation crises due to low quality product:
 - Enacted decrees on the quality requirement of cashmere products;
 - Set up quality inspection centers and quality control offices;
 - Established an industrial park to attract cashmere firms with brand names to Puyuan from all over the nation by preferable land, tax, and credit policies
- Short of skilled labors and inadequate trainings:
 - Built technical training centers/schools to train employees at the township level
- Land shortage:
 - Replaced the scattered farmers' residential houses with town houses. Using the saved land to build factories and industrial park (in which famers hold shares).



Other Important Public Goods

- Generic promotion through annual international cashmere sweater exhibit in Puyuan; build partnerships with experts in leading universities
- Concentrated ironing workshops in a designated area with centralized heat provision to save energy and keep scale of production small.



Local Governments' Incentives

- Inter-government competition is a key feature of Chinese economy. Local government officials' performance is based on GDP growth, fiscal revenue growth and other economic indicators
 - With low incentives many developing countries' local governments play little role in local economic development
- But the inter-government competition in China may not be sustainable in long run when government faces multiple tasks and when they are not elected (Xu, 2010)
 - How will this affect the future of China's virtual conglomerates?

Concluding remarks: the boundary of a virtual conglomerate

- Concentrated control rights is critically important for creating large scale clusters
- Distributed ownership is critically important for accommodating large number of entrepreneurs
- Where do the concentrated control rights of the local governments come from?
- What are the objectives of a local government?
- What is the boundary of a virtual conglomerate?
 - Why most clusters are township-wide and we do not observe a county-wide cluster?
 - What is the difference between a town government and a county government?