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Local Industrial Policy and Cluster Development in China: The Evolution of Anding Potato Cluster

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Debate on Industrial Policy

- There is a heated debate on the role of industrial policy in economic transformation.
- As Prof. Dani Rodrik commented:
“The real question about industrial policy is not whether it should be practiced, but how.”

Debate on Industrial Policy

- Many of the widely cited successful case studies are at the national level.
- The critics often cite the failure of the centrally planned economy in former Soviet Union and China as a proof that industrial policy at the national level won't work.
- In many countries, there are large regional variations. Hence, local industrial policies are more relevant.

Anding Potato Cluster

- Anding of Gansu Province used to be one of the poorest places in China (poverty rate 78% in 1980) and didn't produce potato until 1960s.
- Now it has become one of the three largest potato production centers in China.
- Potato accounts for two-thirds of the cropping area; Anding provides every Chinese with one kg potato per year. Farmers generate about 60% of their income from potatoes.

Major Potato Production Centers in China



Anding potato cluster

Improve Land Quality



From the 1950s to 1990s, the government made great efforts to build terrace fields and irrigation facilities at the river basin level. Of the land compatible to terracing, 93.7% of it has been converted into terrace.

Adopt Potato Production

- Potato is more suitable to the dry environment than wheat. Anding receives only 380mm rainfall per year, compared to 1000mm in Washington DC.
- Potato was introduced in the 1960s as a secondary crop for coping with food shortage. However, wheat is much more appealing than potato in the Chinese diet. In addition, government had guaranteed procurement price for wheat but not potato.
- The local government first asked village cadres to set up demonstration fields on their own land. It took years to scale up potato production as seen below.

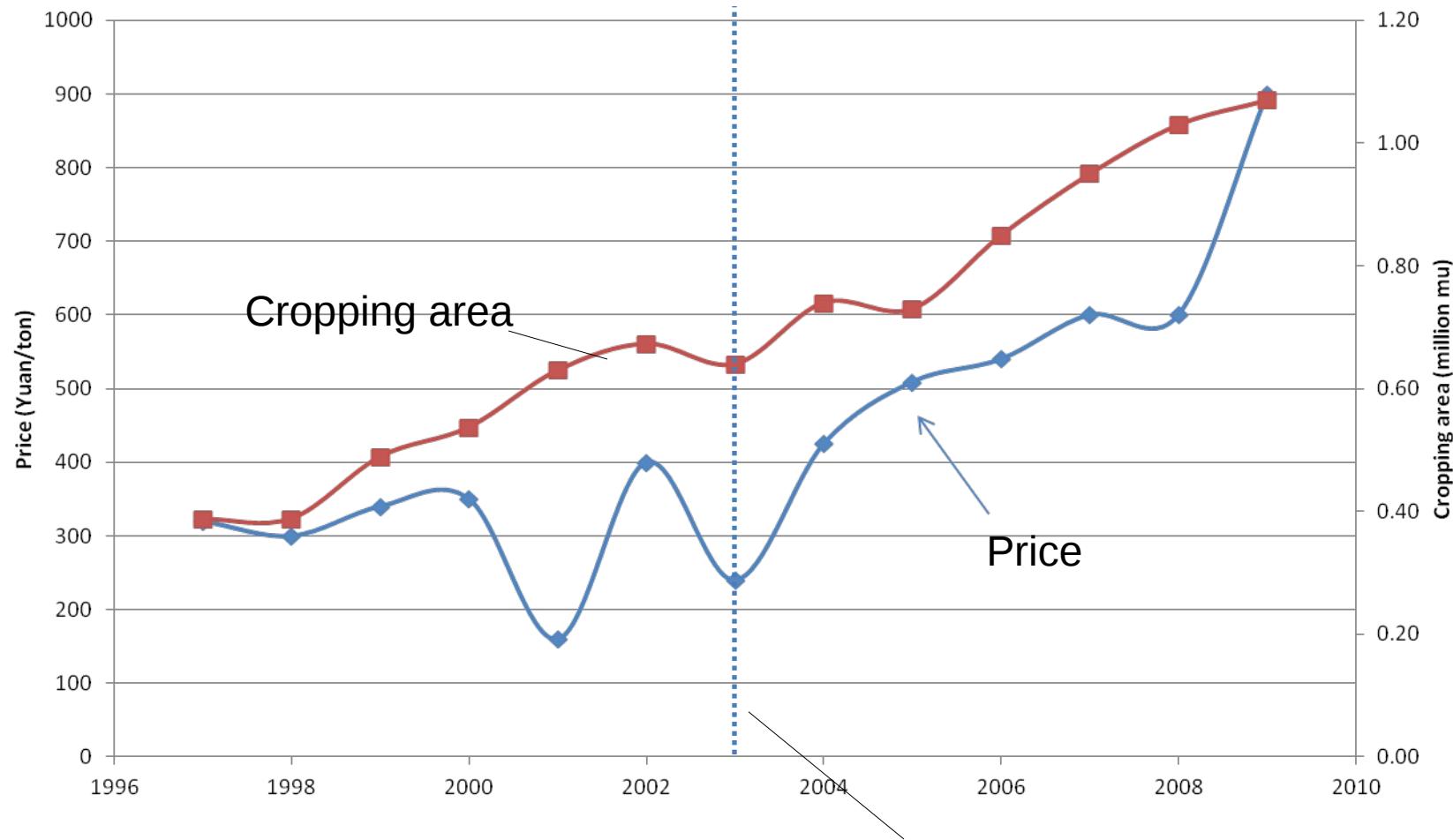


Breed Better Varieties

- Gansu Academy of Agricultural Science bred a high yield variety for starch processing (high starch and low sugar contents).
- County agricultural extension station and a farmer accidentally bred Xiadaping, the most popular vegetable potato; the “Atlantic” was imported from the US for chips and French fries.
- The county set up a breeding center to produce toxin-free potato seeds. Anding is one of the largest potato breeding centers in China.



Price Shocks and Shift in Government Policy



Shift in government policies from stimulating supply to expanding market

The Potato Supply Chain Prior to 2003

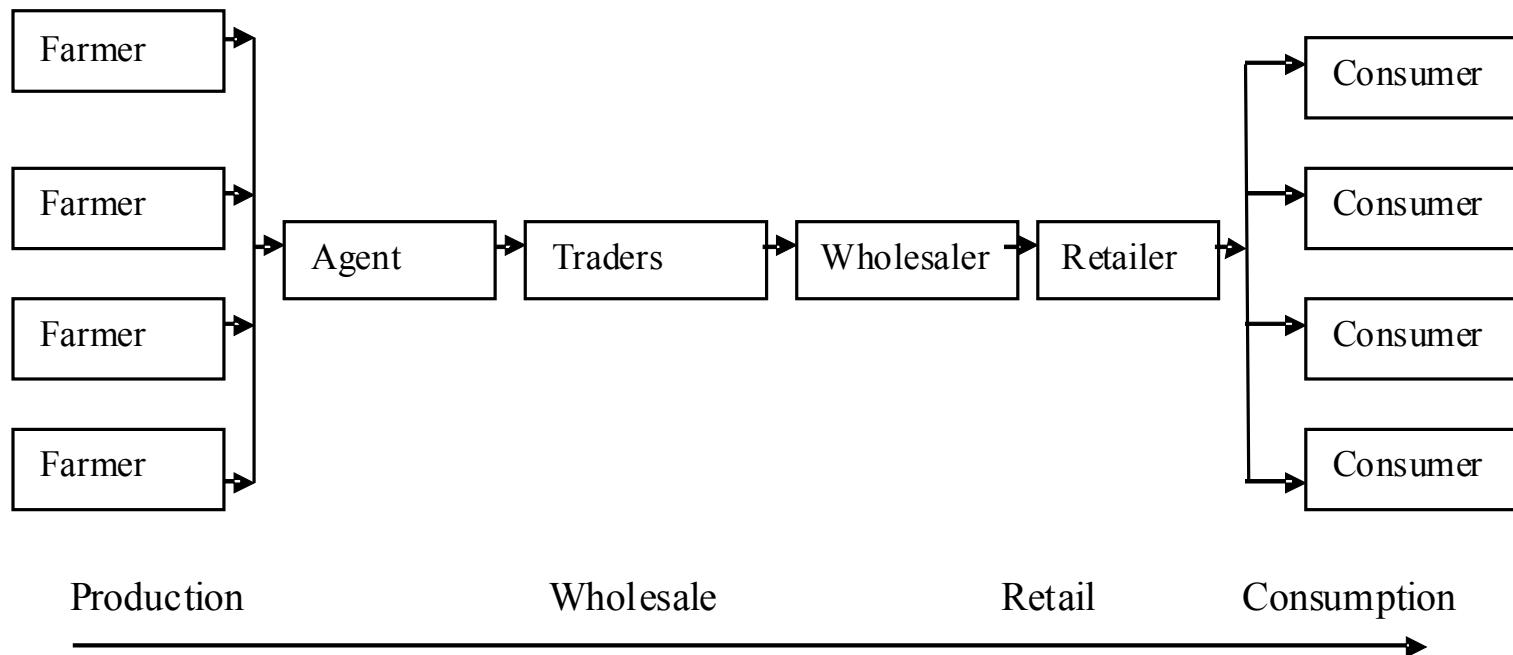
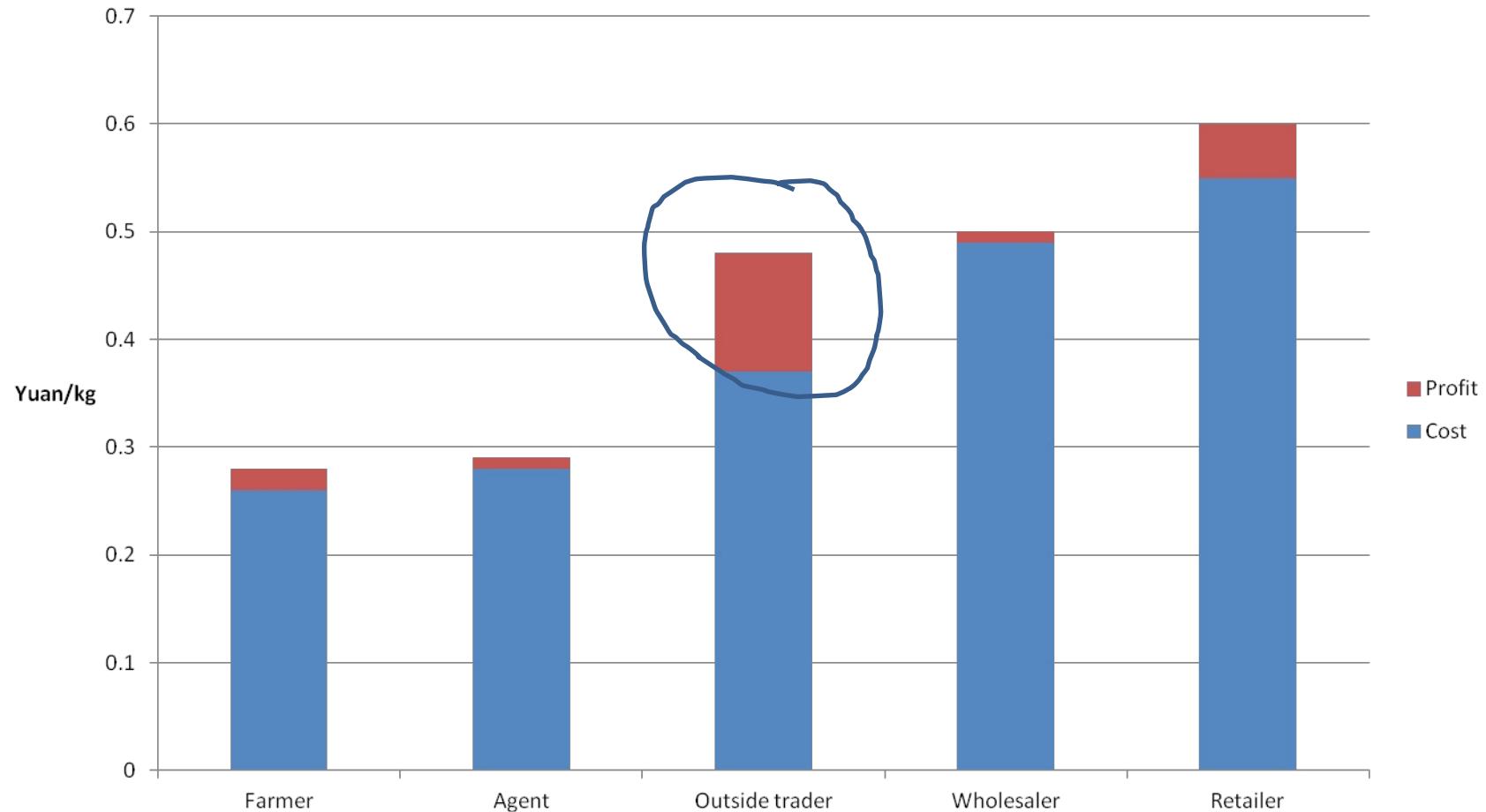


Figure 2: Potato Supply Chain Prior to 2003

Rent Allocations Along the Chain in 2003



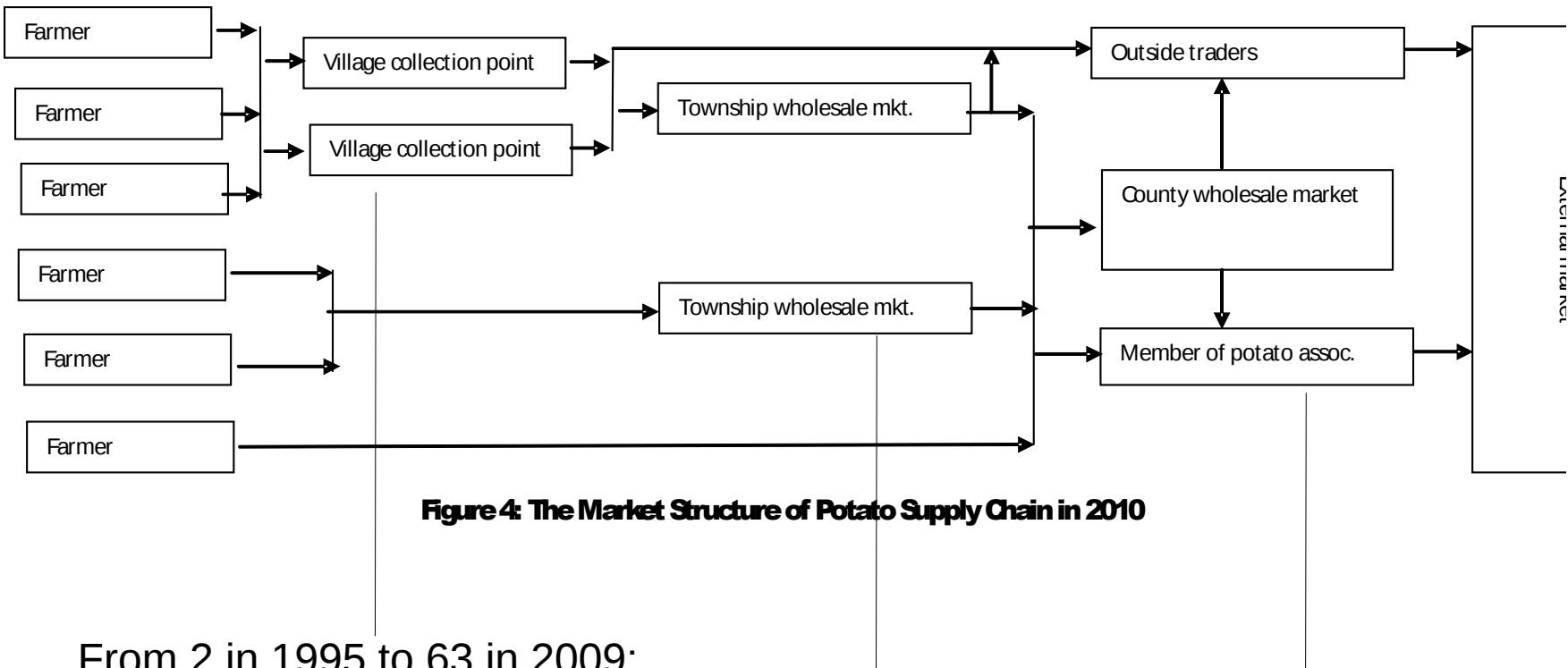
Expand the Market

- Establish trader and producer associations.
- Update market information systems.
- Set up a new system of local wholesale markets.
- Apply for more freight car quotas.
- Subsidize farmers to build storages.

Acquire and Spread Market Information

- The potato association sent informants to live in major wholesale markets nationwide to collect market information.
- The county broadcasts the information in local media (radio, TV, and newspapers) and on large monitors in major gathering places (central squares, railway and bus stations).
- Greater market transparency makes it harder for traders to cheat farmers.

Market Development

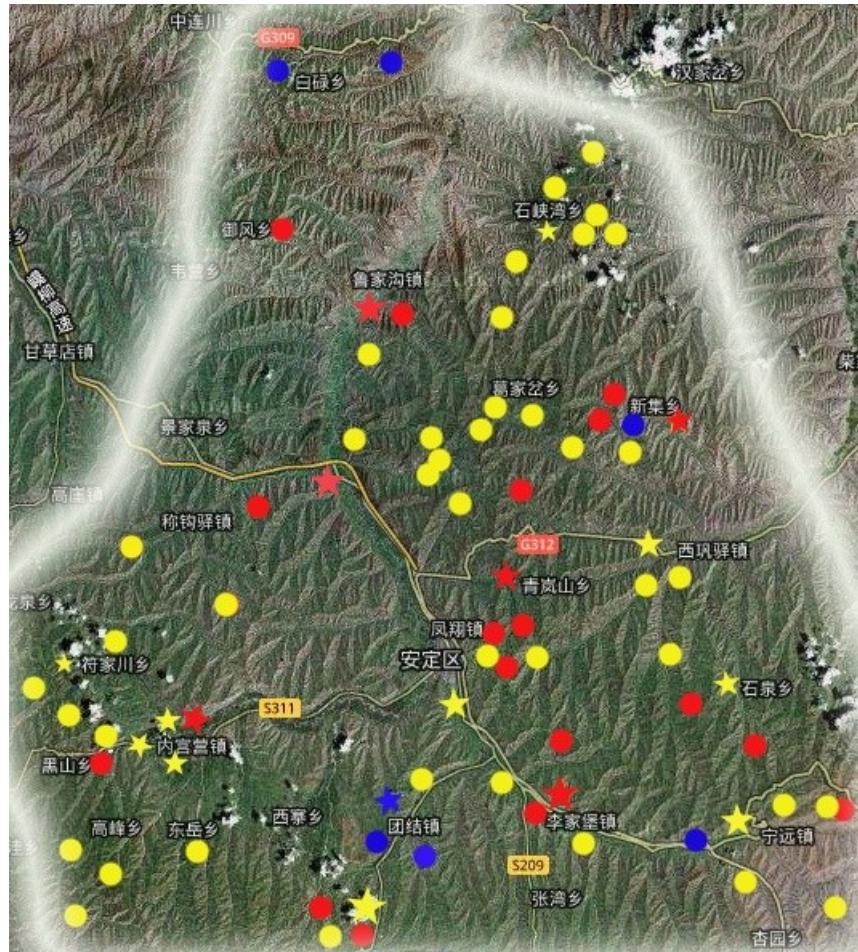


From 2 in 1995 to 63 in 2009;

From 1 in 1995 to 17 in 2009;

From 30 in 2003 to over 3000 in

The Spatial Distribution of Markets Over Time



- ☆: Wholesale market
- : Village collection points
- Blue: Built 1996-2000
- Red: Built 2001-2005
- Yellow: Built 2006-2010

Overcome Transportation Bottleneck

- Lobby for more freight car quotas (up from 1507 in 2003, to 3605 in 2004, and 6145 in 2009).



Transportation cost to Shanghai:
By car: 450 yuan/ton
By train: 225 yuan/ton

→ Anding to Guangzhou:
Anding, China: potato train

Build More Storages (55% of annual output)



Centrally air conditioned: 10000 ton each Natural ventilation storages: Medium size



Small natural ventilation storages:
0.185 million tons



200 Yuan
Subsidy/storage

Farmer's storage: 0.36 million tons
More than 2 storages per household

Develop the Processing Sector

- Local government intensified their effort to attract investors:
 - Provide free land
 - Help secure subsidized bank loans
 - Guarantee stable potato supply
- The number of processing plants increased from 0 in 2003, 2 in 2004, to 12 in 2009. Now it can process about 1/3 of total output.

Develop the Processing Sector

- In 2004, the first two plants produced only starch.
- Quickly, the product lines have become more diversified:
 - Modified starch for industry use
 - Frozen French fries for fast food chains
 - Potato chips
 - Potato flour
 - Even export to the Middle East and Southeast Asia.

Conclusions

- Local governments have played an active role in overcoming successive bottlenecks and fostering the cluster's emergence and growth.
- The early interventions focused on the supply side when local supply had little impact on market price.
- However, when the supply reached a certain scale, it started to depress prices, making interventions on the demand side more appealing.
- When the vegetable potato market got saturated, developing the processing sector became the more effective way to absorb the ever increasing potato supply.

Conclusions

- Industrial policies do matter to the growth of the Anding potato cluster. But the policies are largely at the local level.
- Anding is a rather representative case in China. China's agricultural and industrial development is largely cluster based (Long and Zhang, JIE 2011).
- Why do the local governments in China have such strong incentives to promote local economic development compared with many other developing countries?

Anding: China's Potato Capital



With Liu Dajiang, president of Potato Trader Association
(member of National People's Congress)