

# **A new growth model for the coastal region in China?**

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## **The case of the electronics cluster in the Pearl River Delta**

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# Research context

Model of externally-driven regional economy is now challenged.

- Previous model: highly clustered firms in either specialized towns or special economic zones assembling and producing finished products for export market.
- After the crisis: firms react to the crisis by adjusting the **production strategies** and **market orientation** (Glick and Speigel, 2012; Yang, 2013), and government at different levels react with **massive investment plans**

# Research question

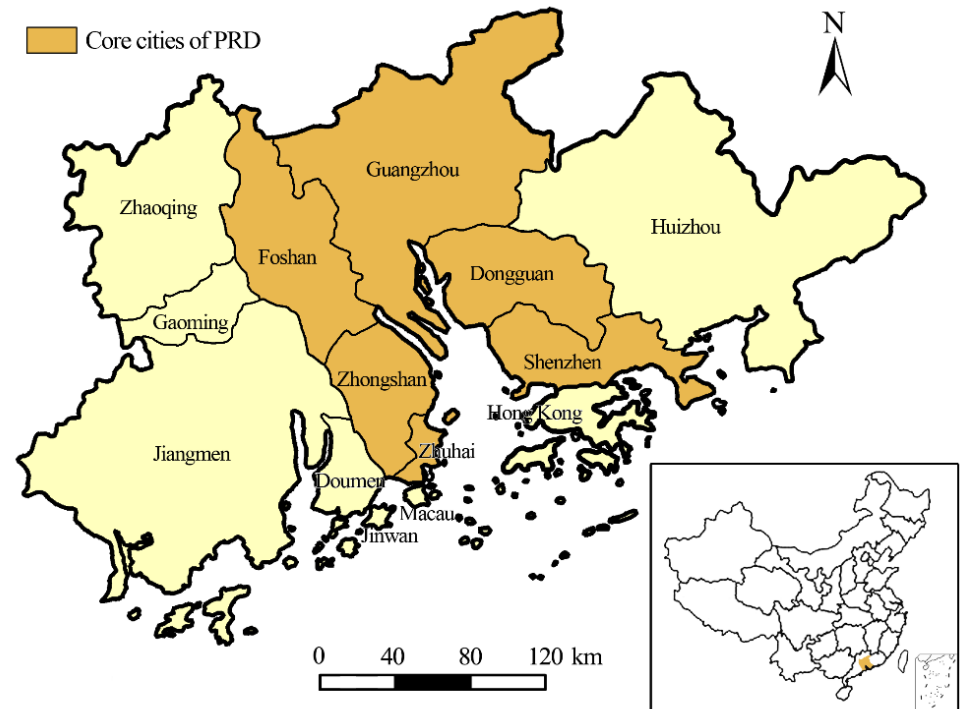
- What exactly will emerge as the sustained mechanisms driving the firm growth in the post-crisis era?
- For the export-oriented coastal regions, are new growth model and emerging pathways possible under the hit of worldwide financial crisis?
- What is the difference in adjusting strategies after the crisis between foreign and domestic firms?

# Research region

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- **Study area:** Pearl River Delta (PRD), Guangdong Province, China
- **The region is characterized as:**
  - flexible and informal production system driven by overseas investment
  - continuing transition forces from the bottom-up
  - dominated with modern industries, e.g. electronics industry & auto industry



# Regional restructuring in the PRD

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- Market reorientation buttressed by the Chinese government captured in the political slogan “**expanding the domestic demand**”
- **Chinese economy trapped in overinvestment and underconsumption:** Most of the 4 trillion stimulus package are used for boosting **large infrastructure investment**, with regional priorities on **central & western regions**
- **Local politics** deteriorates the overreliance on investment projects
- Still, some substantial measures have been taken to **release the market potential** in both the urbanized areas and the vast rural areas.



Frenetic consumption in Anti-Valentine's Day in China

# Regional restructuring in the PRD

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- Compared to the national average, Guangdong's fiscal plan much more focused on industrial capacity restructuring than investment
  - **“Made in Guangdong” initiative**
  - **Promote industrial transfer parks in the peripheral regions**
- Local politics coupling with local economic conditions in Guangdong
  - **Core cities in the PRD:** different approaches in addressing the political need to “expanding domestic demand”
- Industrial upgrading projects carried out for the enhancement of supplier capability

|                  | Central government funding (unit: billion ) | Municipal supportive fund (unit: billion yuan) | Investment on industrial upgrading & innovation (%) |
|------------------|---|--|---|
| <b>Guangzhou</b> | 8.1 (32)                                    | 650  | <1%   |
| <b>Shenzhen</b>  | 10.4 (36)                                   | 388  | 18%   |
| <b>Dongguan</b>  | 0.11 (18)                                   | 730  | 33% (in the 2008 plan)                              |
| <b>Foshan</b>    | 0.02 (4)                                    | 180  | 17%   |
| <b>Zhongshan</b> | 0.2 (14)                                    | 110  | n.a.  |

## Research method

- **DFG Priority Program “Megacity-Megachallenge: Informal dynamics of global change”**, three phases spanning from 2006-2012
- **Pooled cross section model** over three surveyed timeframes that falls into the pre- and post-crisis periods, i.e. 2007 (222 firms surveyed), 2009 (422 firms surveyed) and 2011 (290 firms surveyed)
- Examine the time-varying factors that determine the firm growth, including innovation, export orientation, production mode, and spatial organization (supplier proximity)
- In pooled model, the impact of exogenous events and the resulting structural changes can be evaluated by including the time dummy variables and their interaction terms

# Changing firm growth dynamics

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**Dependent variable: Annual sales growth** in four ordered scales, i.e. 1 as negative growth, 2 as <2%, 3 as 2%~10%, and 4 as >10%

| <b>Independent variable</b>  | <b>Name</b>           | <b>Definition</b>   |
|------------------------------|-----------------------|---|
| <b>Firm characteristics</b>  | Firm sales            | Ordinal data defined as 1 if less than 1 million Yuan, 2 if between 1-5 million, 3 if between 5-10 million, 4 if between 10-50 million, and 5 if between 50-100 million, and 6 if more than 100 million |
|                              | Firm Ownership        | 1 for non-domestic firms, including wholly owned foreign and Sino-foreign joint ventures, 0 for domestic firms  |
| <b>Production strategies</b> | New product rate      | Share of new product sale in total sales, asked in ordinal term as 1 for 0%, 2 for 0-10%, 3 for 10-25%, 4 for 25-50%, 5 for 50-75%, 6 for 75-100%   |
|                              | Domestic market share | Share of domestic sale in total sales   |
|                              | Specialization index  | Share of the most important product in total sales  |
|                              | OEM share             | Share of OEM production in total sales  |
| <b>Spatial organization</b>  | Supplier proximity    | 1 if the primary supplier is located in the same city, 0 otherwise  |

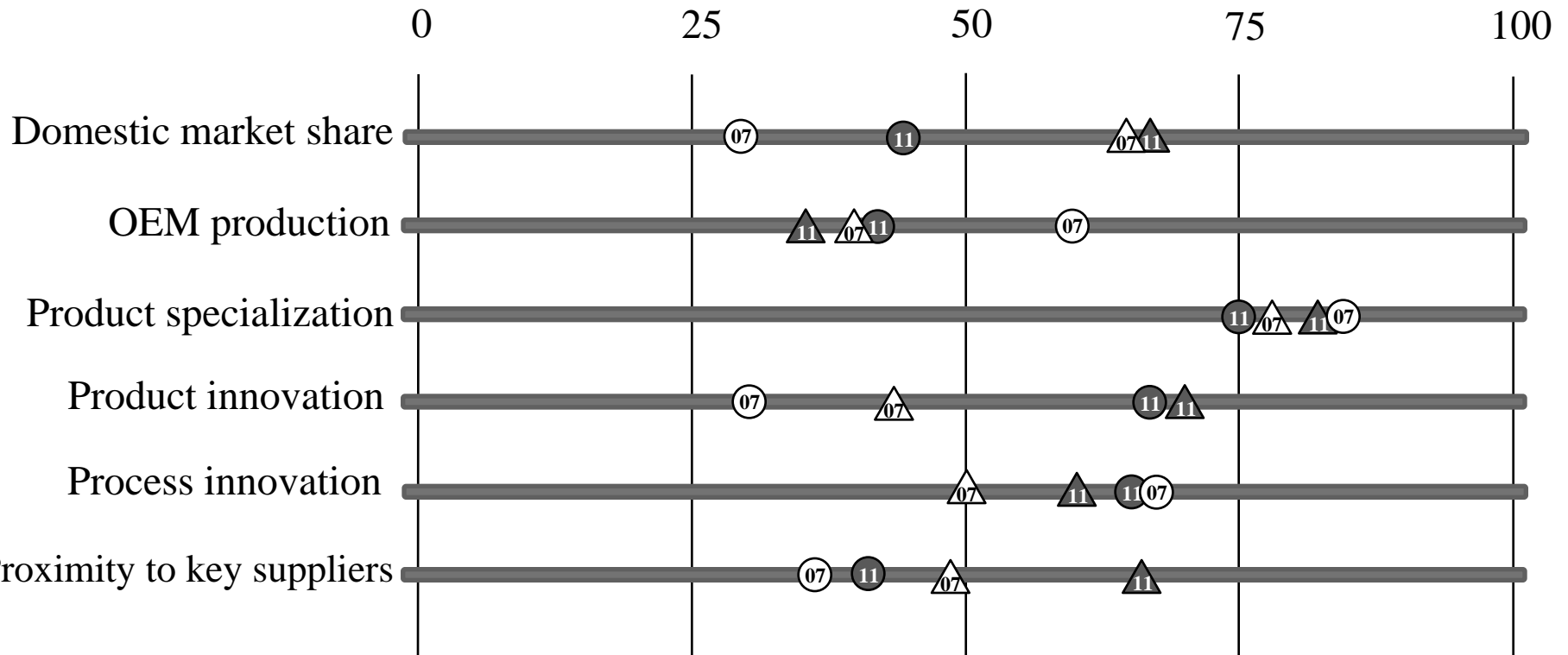


# Changing firm growth dynamics

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- Changing production strategies and spatial organization



△ 2007 domestic firms

▲ 2011 domestic firms

○ 2007 foreign firms

● 2011 foreign firms

# Changing firm growth dynamics

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## Results of the ordered logit model for the pooling data

### Reference group:

- domestic firms
- totally export-oriented
- no product innovation
- organized production in a highly diversified and flexible way
- without support of key supplier proximity

| Independent variables  | Coefficient<br>(Odds ratio) | Independent variables           | Coefficient<br>(Odds ratio) |
|------------------------|-----------------------------|---------------------------------|-----------------------------|
| Firm sales             | 0.18***<br>(1.12)           | Firm ownership*year 2009        | -0.98**<br>(0.37)           |
| Firm ownership         | 0.34<br>(1.41)              | Firm ownership*year 2011        | -0.89<br>(0.41)             |
| New product rate       | 0.16<br>(1.17)              | New product rate*year 2009      | 0.31<br>(1.37)              |
| Specialization index   | 0.01*<br>(1.01)             | New product rate*year 2011      | 0.50<br>(1.64)              |
| OEM share              | -0.004*<br>(0.99)           | Specialization index*year 2009  | -0.016*<br>(0.98)           |
| Domestic market share  | 0.008**<br>(1.01)           | Specialization index*year 2011  | -0.025**<br>(0.97)          |
| Suppliers proximity    | 0.01<br>(1.01)              | Suppliers proximity *year 2009  | 0.28<br>(1.32)              |
| Year 2009              | 1.97**<br>(7.16)            | Suppliers proximity *year 2011  | 1.02**<br>(2.76)            |
| Year 2011              | 1.24<br>(3.46)              | Domestic market share*year 2009 | -0.009*<br>(0.99)           |
|                        |                             | Domestic market share*year 2011 | 0.017**<br>(1.02)           |
| Prob > chi2            |                             | 0.00                            |                             |
| Pseudo R square        |                             | 0.095                           |                             |
| Number of Observations |                             | 610                             |                             |

# Changing firm growth dynamics

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## Results of the ordered logit model for the pooling data

### Cross-tab analysis:

Further reveals that the crisis has enlarged the gap between the business winners and losers

The reference group firms, if they survived the crisis and did not close down, even grow to some extent in 2009 when the market is recovering

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## Results of the ordered logit model for the pooling data

**Crisis worsened the situation of foreign firms more significantly than the domestic firms**

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PRD firms turn more to the **domestic market** to search for more opportunities, meanwhile increasing the share of **brand manufacturing** in order to establish their position in the market

Domestic market gradually demonstrate energetic dynamics

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Increasing advantage brought by the proximity to key suppliers

- Empirical investigation in the firm level suggests **a more endogenous electronics cluster** in the PRD that is driven by domestic market potential and colocation with the key suppliers.
- Interrogates the arbitrary prediction on the recession of the export-oriented regions in China
- More research attention is needed for regional attributes, including the industrial composition and local politics, in the further investigation on the restructuring post-crisis economy.

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of RSA bursary!**

**Q&A**