



清华大学中国科学技术政策研究中心
China Institute for Science and Technology Policy at Tsinghua University

Multinational R&D in China: Myth and Realities

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CISTP

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Outline



- Background
- Initial Findings-Nationwide
- Initial Findings-The Case of Beijing
- Brief Comparison: Beijing vs Shanghai
- Implications

Background-the trend



- The trend of R&D globalization and MNC R&D Centers in China:
- Our study in 1999 found over 30 MNC R&D centers by major MNCs;
- Ministry of Commerce's data for 2001 was less than 200;
- In 2005, government revealed that there are over 750 MNC R&D centers in China.

Background-issues



Debates and concerns (Policy level):

- In developing countries such as China, there is a debate about the impact of MNC R&D activities:
 - spill-over vs. suck-in effects;
- In developed countries such as the US, there is also some concern:

First manufacturing. Now R&D, Are they going too far?

Special Report: Outsourcing R&D, Business Week, March 21, 2005



- Questions and puzzles (management level):
 - What are the rationales (supply-factors vs. demand-factors)?
 - What do they do (original vs. adaptive)?
 - What are the impacts (remember Xerox's PARC)?
 - What are the tangible outputs?

Background-objectives



- A follow up study of our 1999 study when we surveyed over 30 major MNC R&D centers around China (Xue etc.2000,2001,2002);
- Aimed at improving our understanding of MNCs R&D activities in China with a special focus on MNC's R&D centers in Beijing, Shanghai, and so on.
- Supported by MOST, MOC, MOE and Municipal government of Beijing and Shanghai.

Background-Research methods



- The sample:
 - 335 MNCs in China out of 483 eligible companies from Business Week Global 1000(2004);
- Research methods:
 - Phone interviews with 289 of these companies;
 - Questionnaires sent to 78 MNC directors in Beijing, with 36 responses; Responses from Shanghai are pending;
 - In depth interviews were conducted with 20 directors of these R&D centers.

Initial Findings

-Nationwide



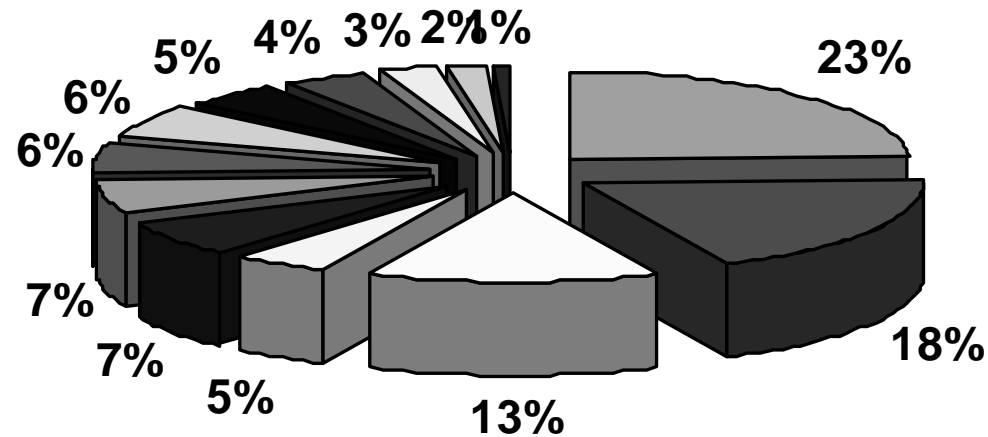
- Out of the 289 companies we phoned, 117 companies have set up R&D facilities in China;
- 215 R&D centers were set up by them;
 - 107 are autonomous R&D labs;
 - 59 are R&D units in the local subsidiaries;
 - 49 joint centers (with universities and so on)

Initial Findings

-Industrial Distribution (2004):



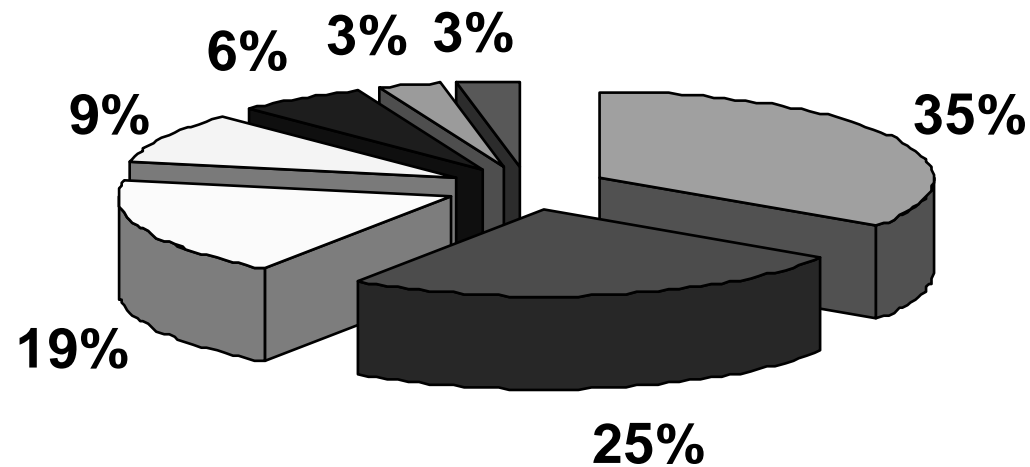
The industrial distribution of autonomous R&D labs settled by Business Week 1000 MNCs in China (2004)



- | | |
|-----------------------|--|
| ■ Software | ■ Telecommunications |
| □ Semiconductors | □ Industrial Equipments and components |
| ■ Automobiles | ■ Commodity Chemicals |
| ■ Biotechnology&Drugs | □ Household Electronics |
| ■ Other IT Products | ■ Chemicals |
| □ Food and beverages | □ Industrial Conglomerates |
| ■ Others | |

Industrial Distribution (1999):

Figure1 The industrial distribution of autonomous R&D labs settled by Business Week 1000 MNCs in China (1999)



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China

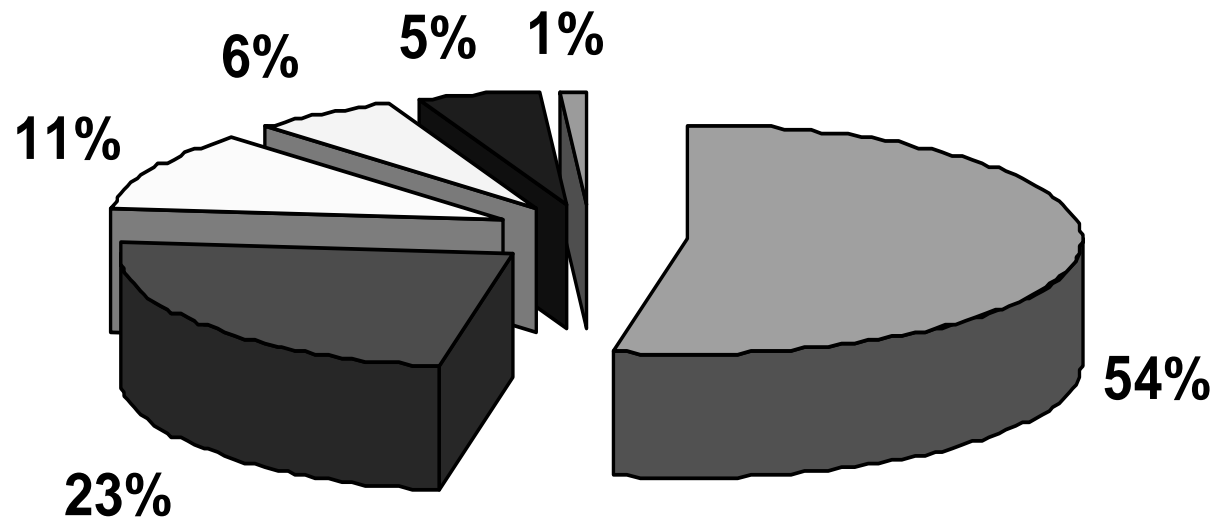
Initial Findings

-Country Distribution (2004)



city

The country distribution of autonomous R&D labs settled by Business Week 1000 MNCs in China (2004)



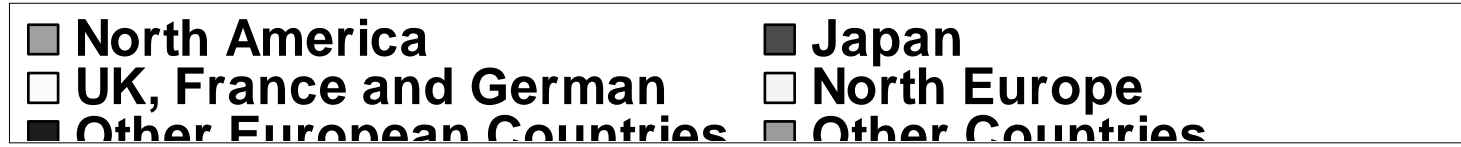
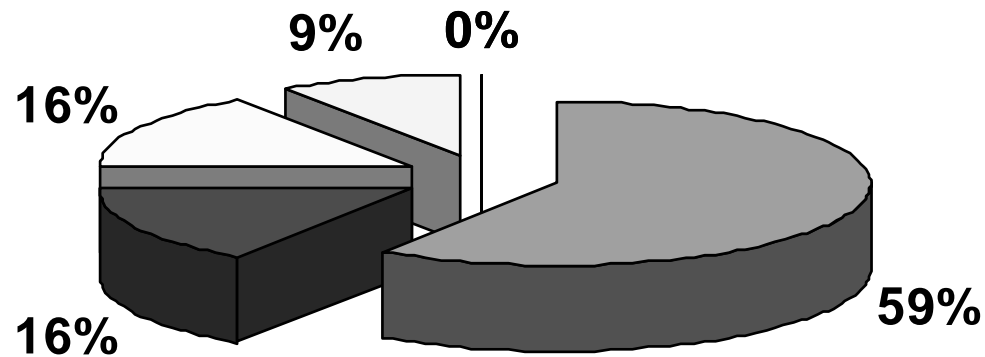
- North America
- UK, France and German
- Other European Countries
- Japan
- North Europe
- Other Countries

China

Country Distribution (1999)



Figure 3 The country distribution of Autonomous R&D labs settled by Business Week 1000 MNCs in China (1999)

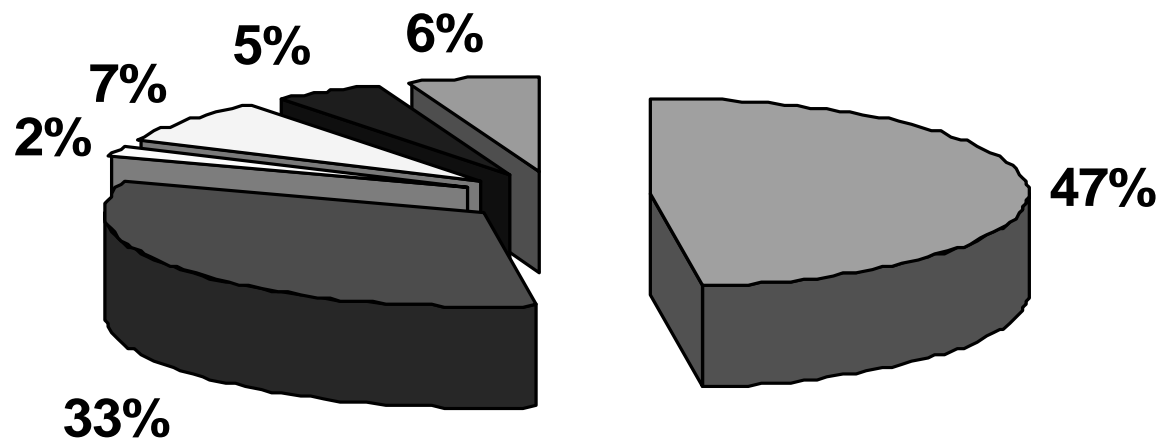


Initial Findings

-Location Choice (2004)



The regional distribution of autonomous R&D labs settled by BusinessWeek 1000 MNCs in China (2004)



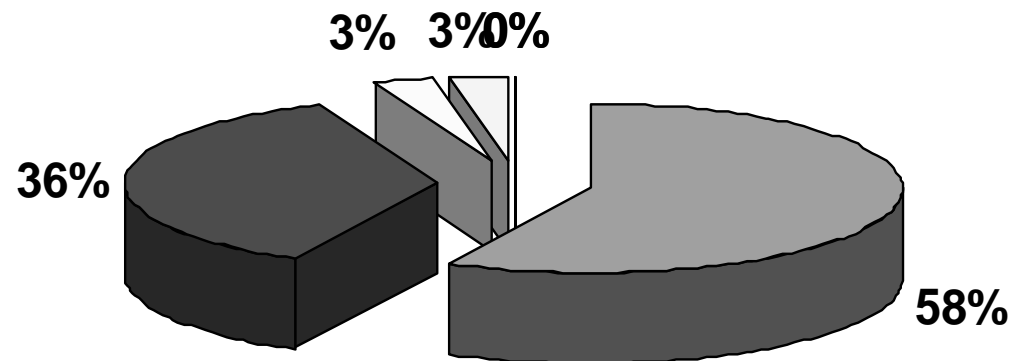
■ Beijing	■ Shanghai	□ Tianjin
□ Guangdong	■ Jiangsu	■ Other regions

Location Choice (1999)



ity

The regional distribution of autonomous R&D labs settled by BusinessWeek 1000 MNCs in China (1999)



China I

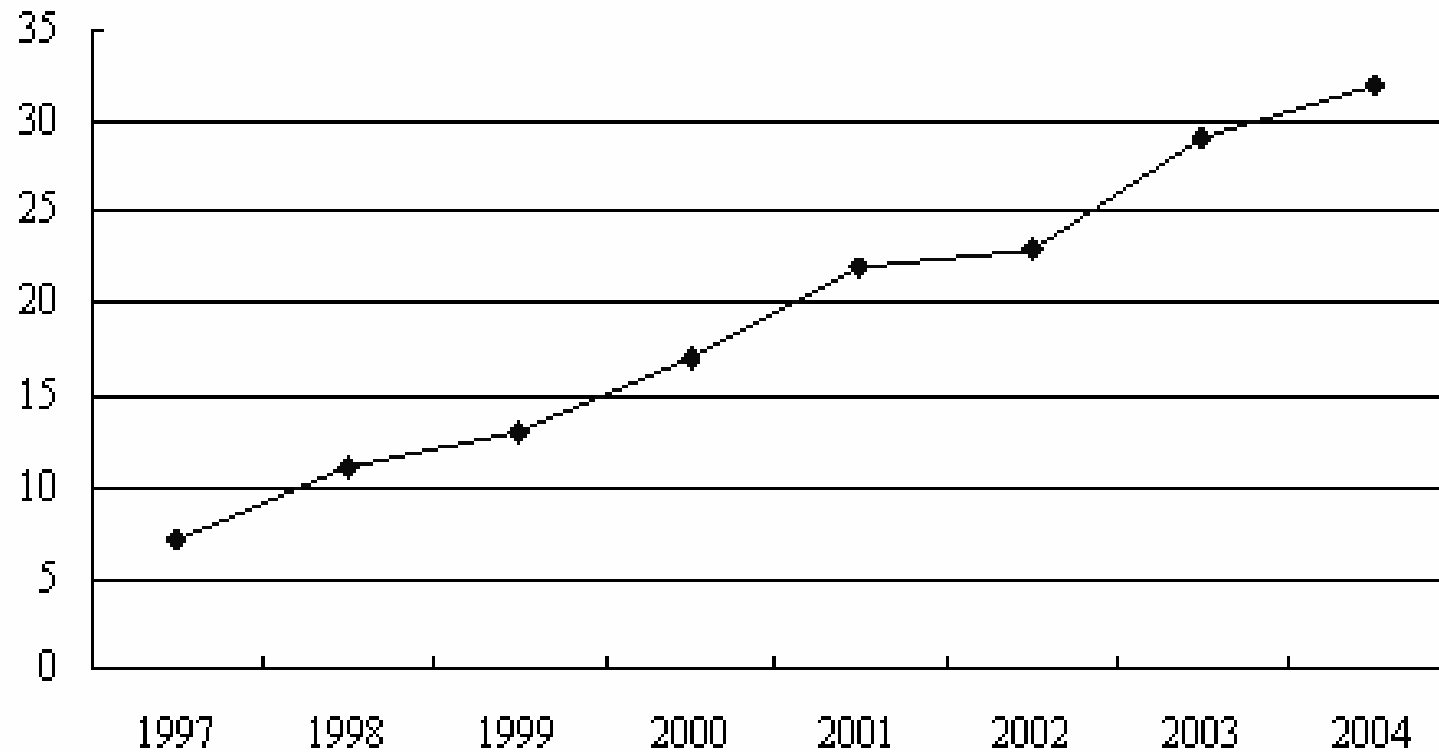
Initial findings

-The case of Beijing

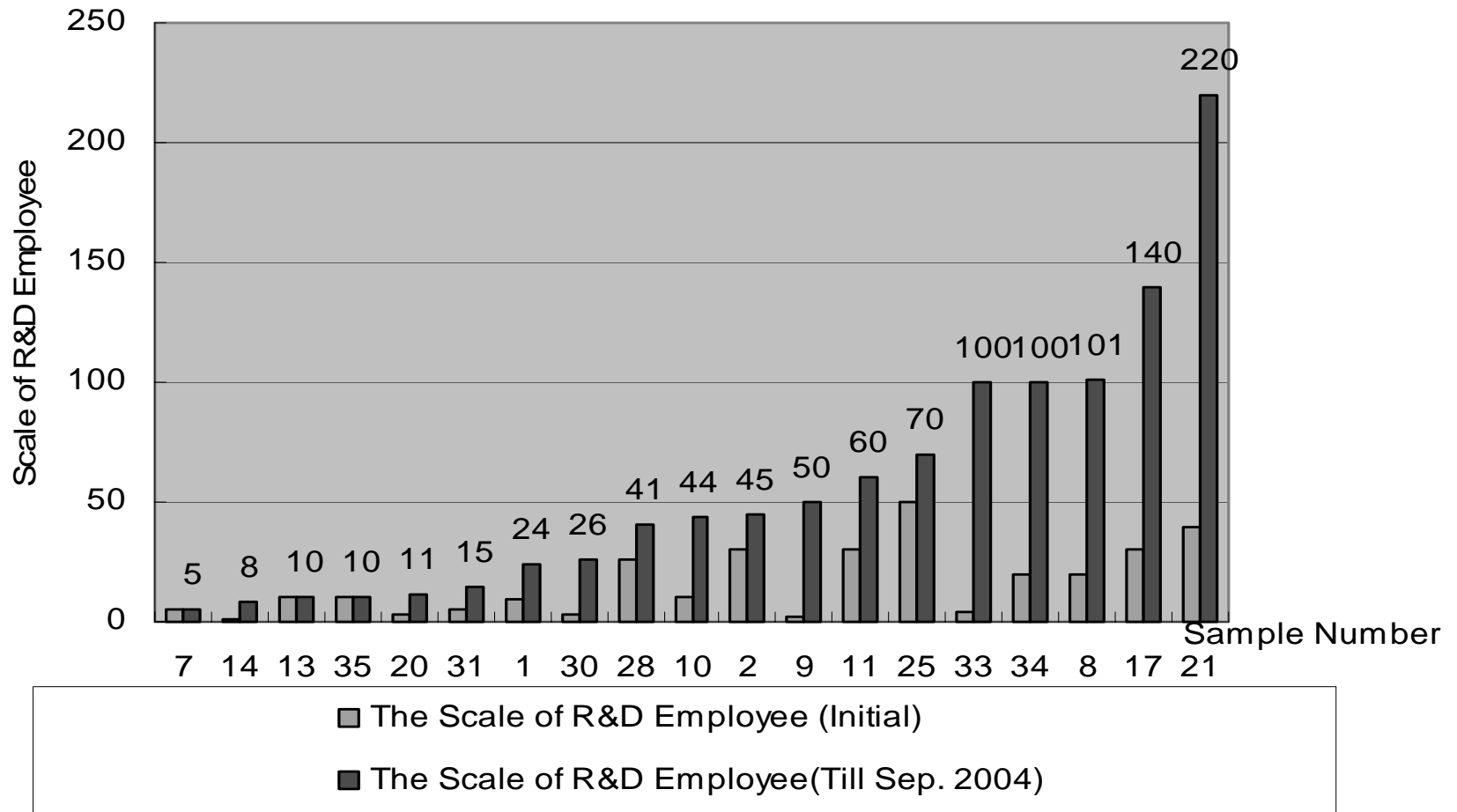


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The growth of MNC's R&D Centers in Beijing
(Surveyed Samples)



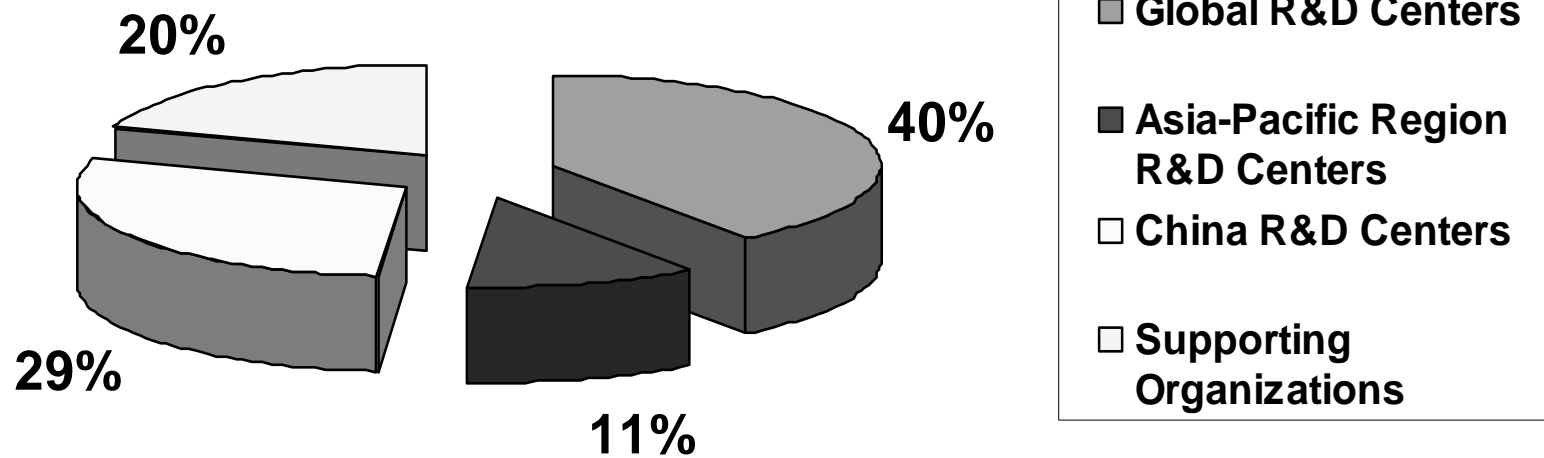
Comparison of the initial scale and current scale of R&D employees



Positioning of the R&D Centers



The positioning of MNCs' R&D centers in Beijing

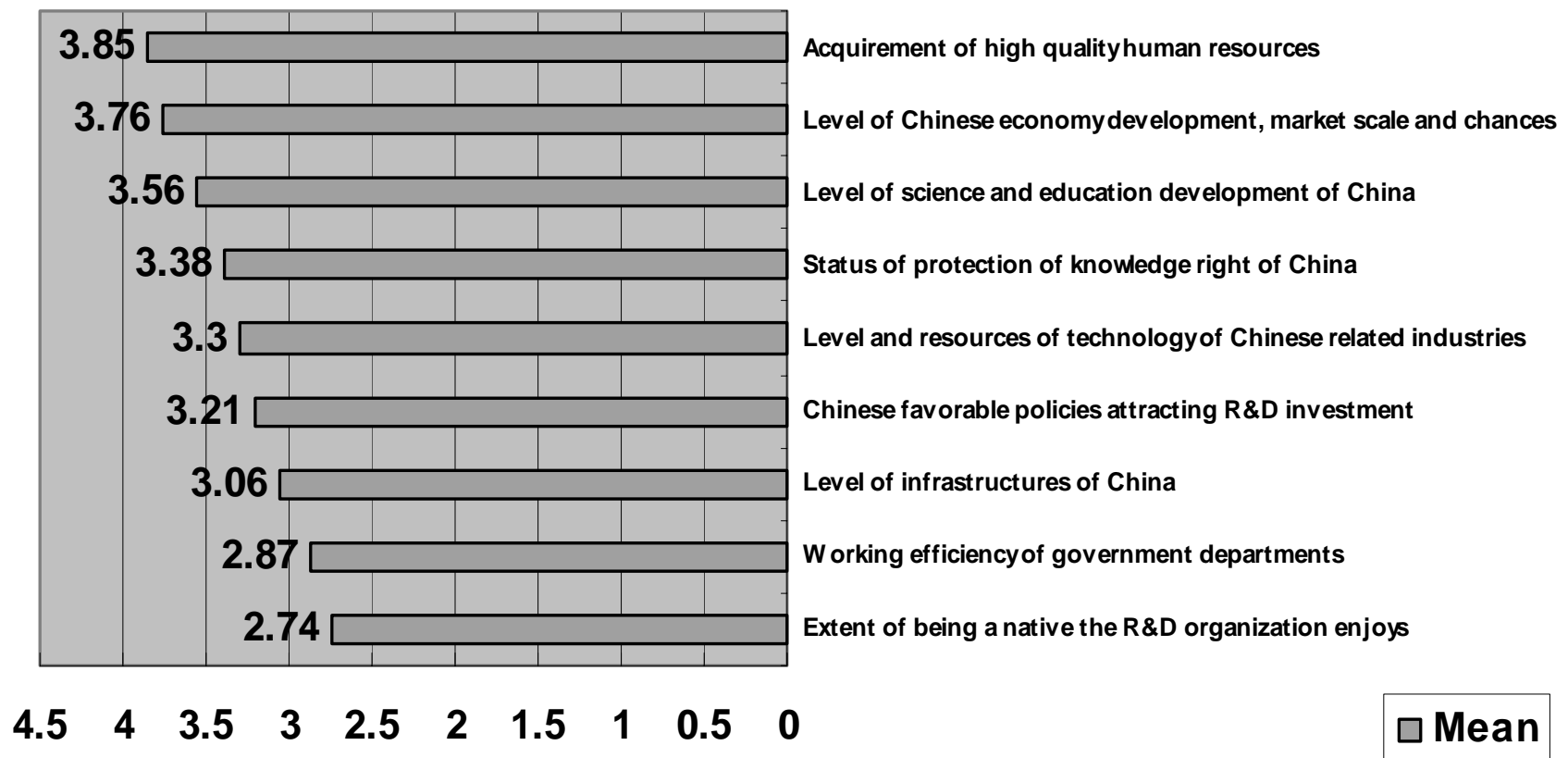


What attracts these R&D centers to Beijing?



iversity

The importance of different factors which have impacts on MNCs' R&D investing decision in China



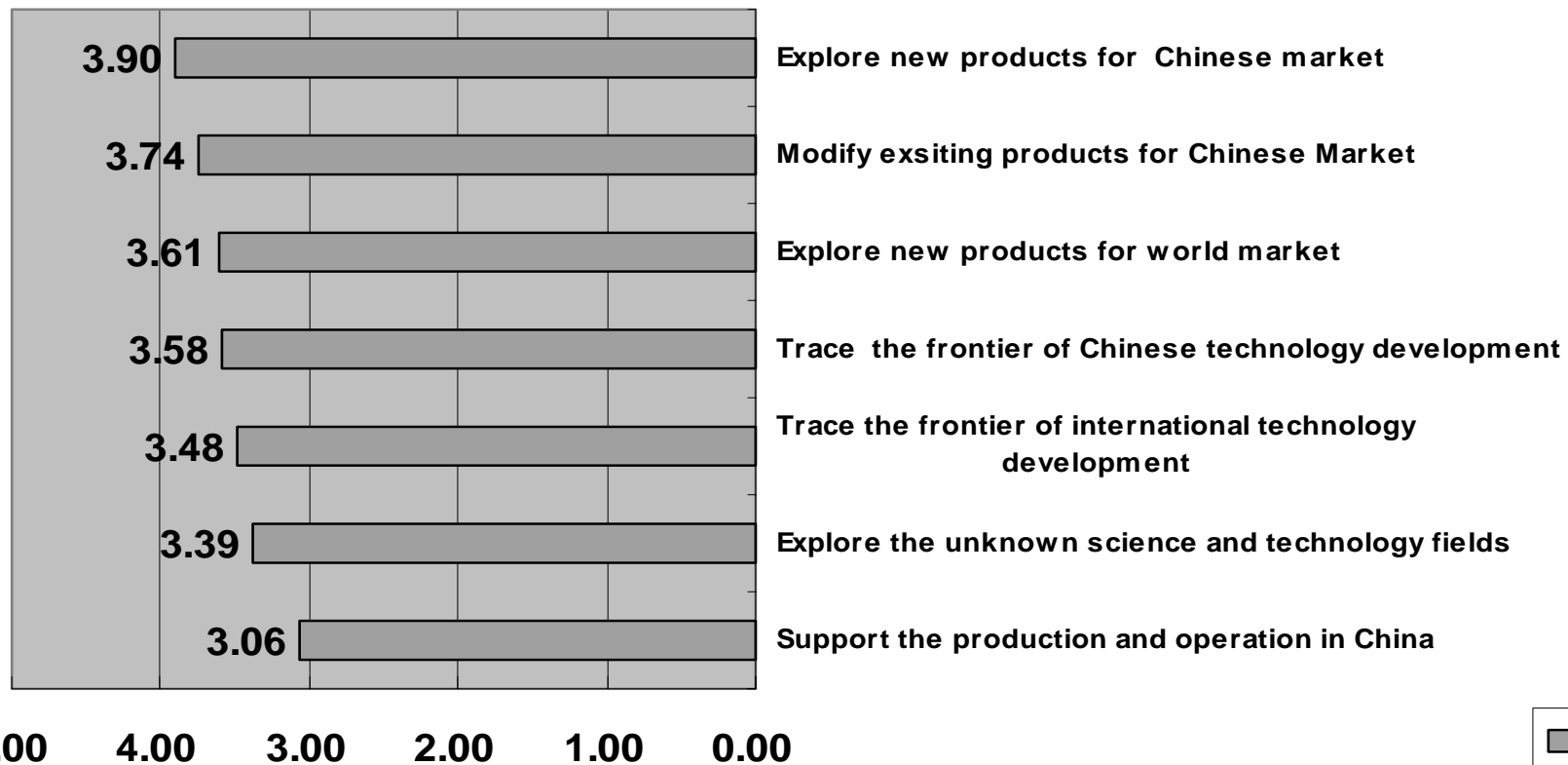
China

What are they doing here?



iversity

The importance of different objectives of the R&D centers' work(2004)



China In:

Human Resource Management

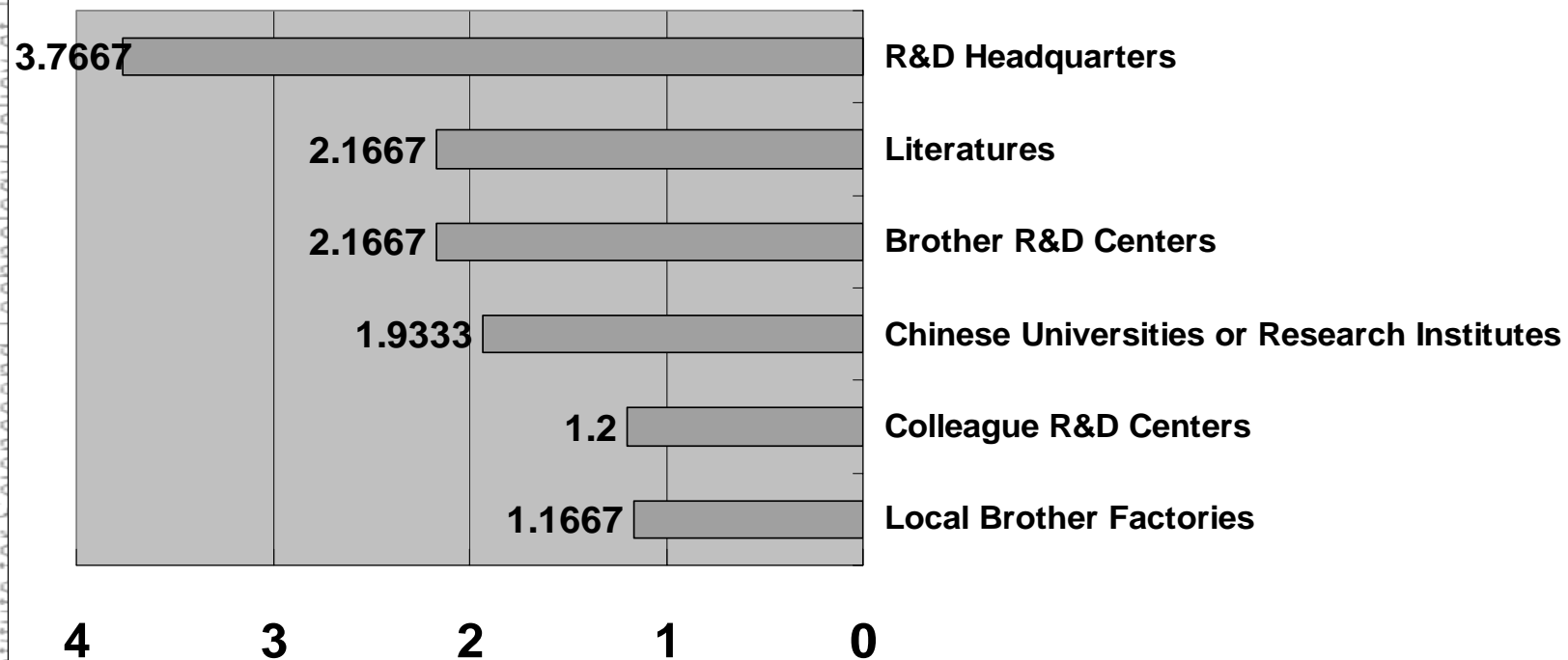


	Chinese	Parent countries	Mix
Director	44.4%	55.6%	
Senior managers	50%	16.7%	33.3%
Key R&D personnel	74.2%		25.8%

Importance of Sources of knowledge



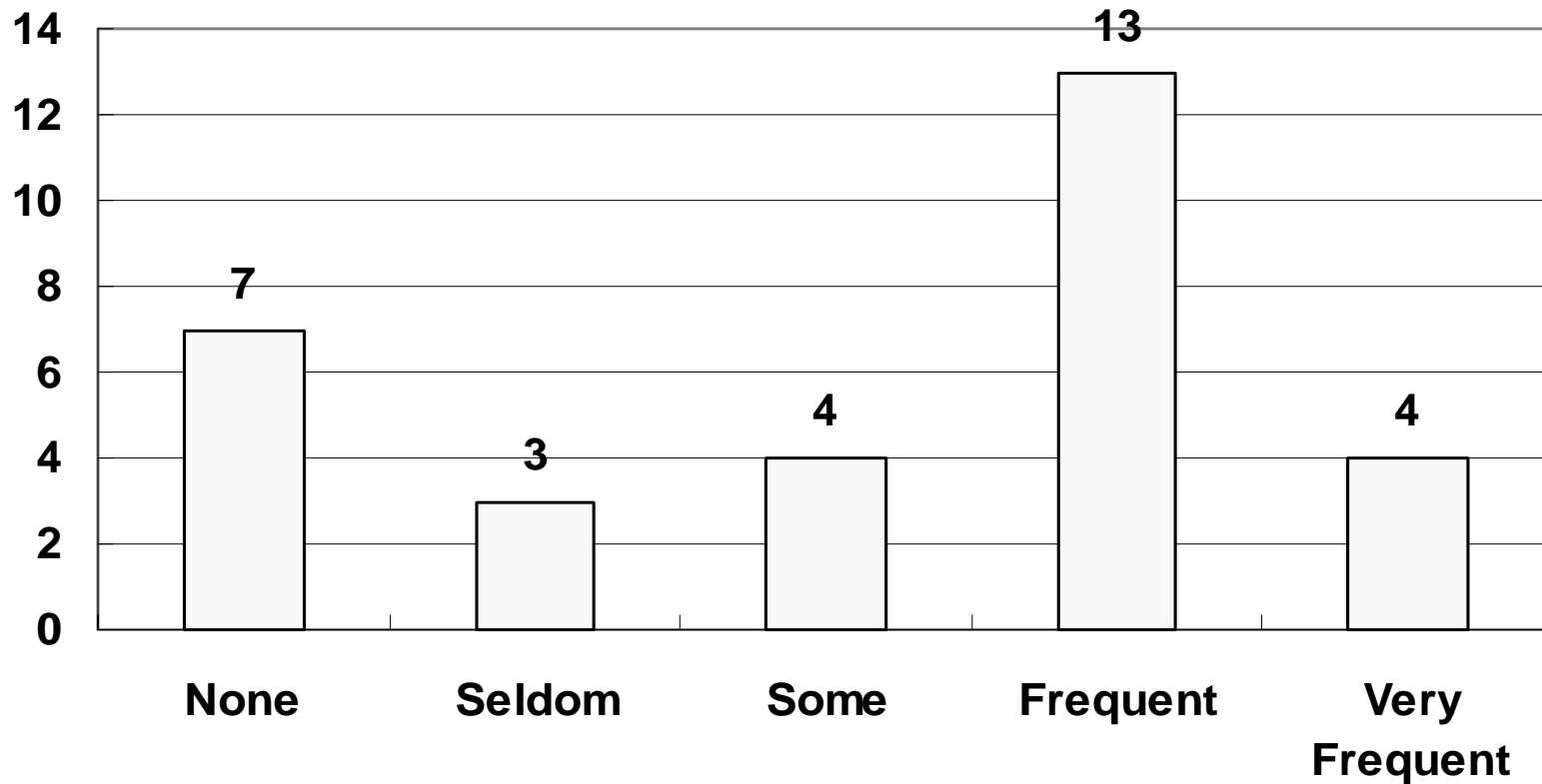
The Sources of Knowledge of MNC's R&D Centers in Beijing



R&D Cooperation with Academia

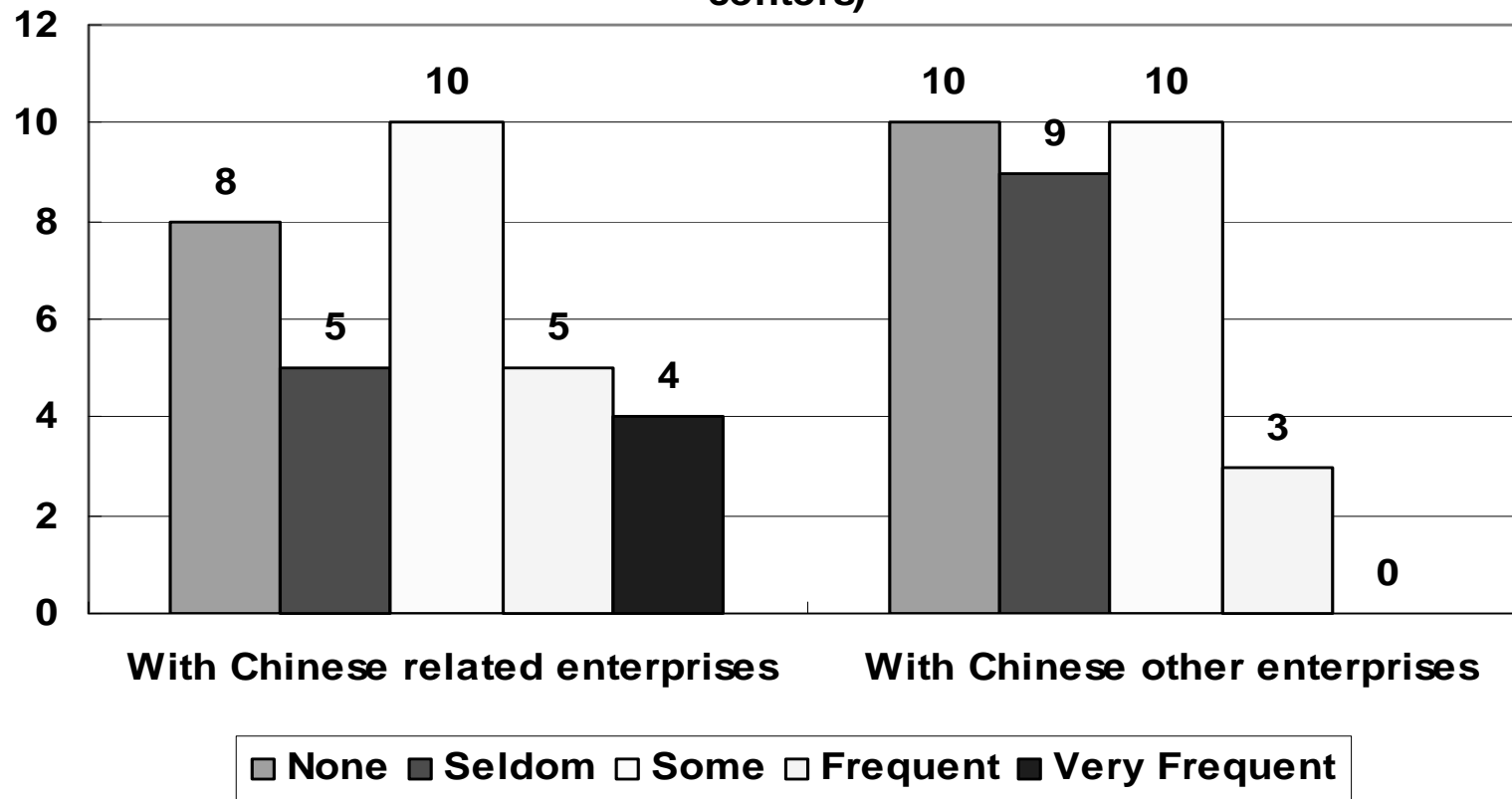


The frequency of communications between MNCs' R&D centers and Chinese university/science research institute (the number of correspondent R&D centers)



R&D Cooperation with Firms

The frequency of communications between MNCs' R&D centers and Chinese enterprises (the number of correspondent centers)



Brief Comparison

-Beijing vs Shanghai



The Sample:

Beijing: 127 centers (till the end of 2004)

The certificated foreign R&D centers by Beijing Municipal S&T Committee;

Other centers searched through website, business literatures and public media, confirmed by phone

Shanghai: 172 centers (till the end of Jan. 2006)

The certificated foreign R&D centers by Shanghai Foreign Investment Commission

Questionnaires sent to 10 centers' directors in Shanghai at random, with 7 responses

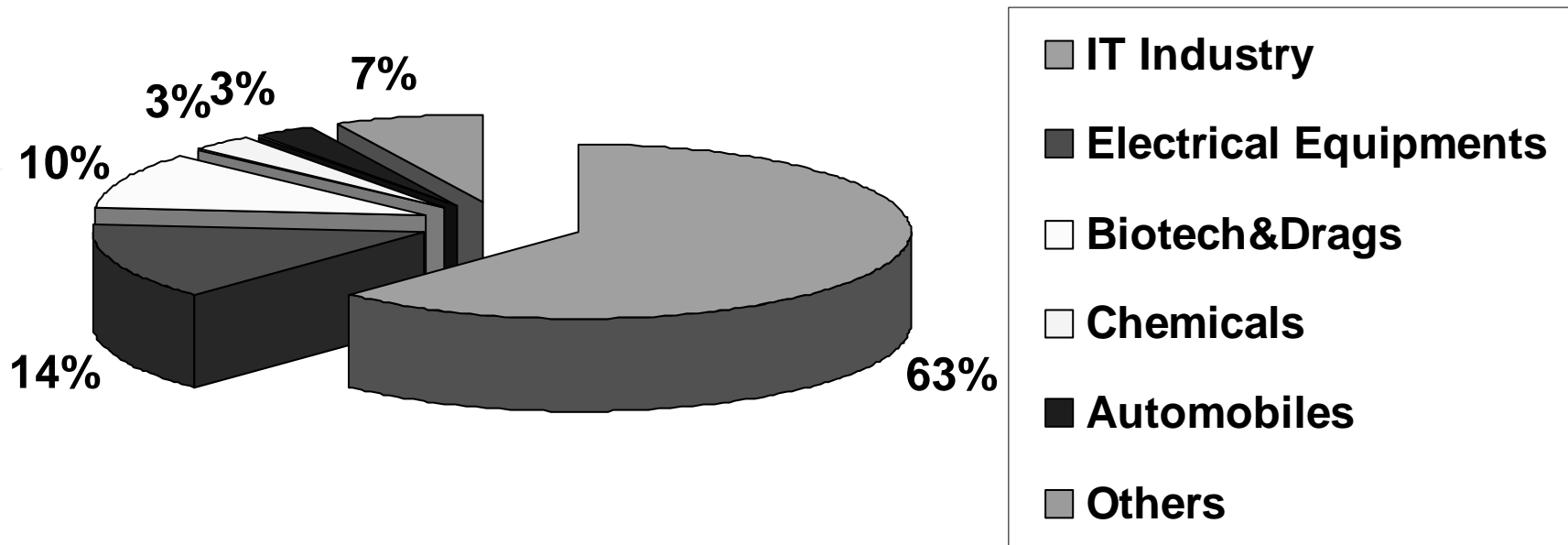
Brief Comparison

-Industrial Distribution



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The Industrial Distribution of Foreign R&D Centers in Beijing



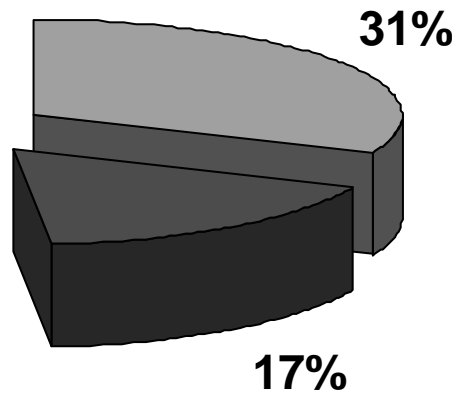
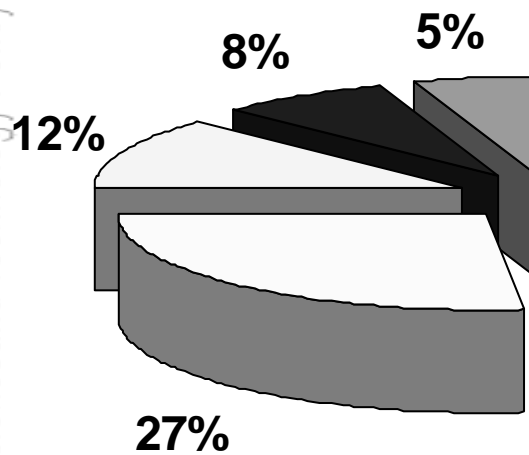
Brief Comparison

-Industrial Distribution



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The Industrial Distribution of Foreign R&D Centers in Shanghai



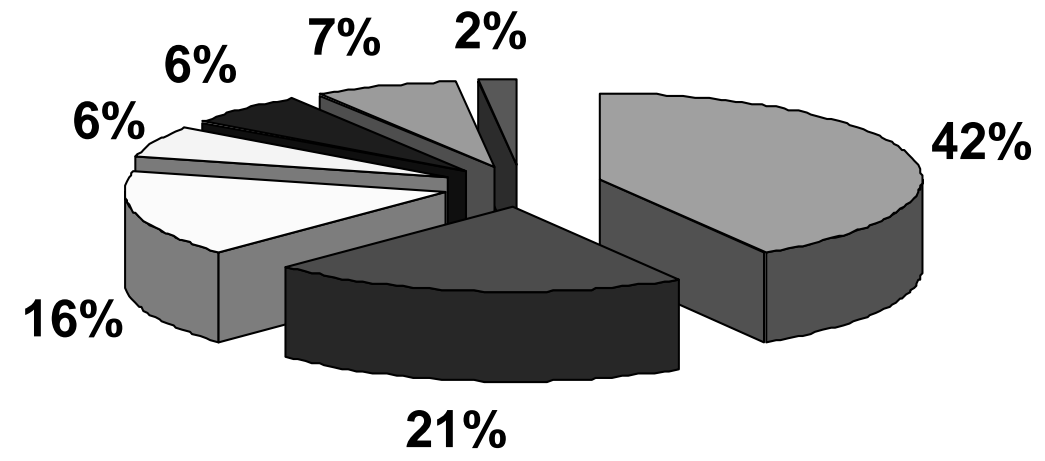
- IT Industry
- Electrical Equipments
- Biotech&Drugs
- Chemicals
- Automobiles
- Others

Brief Comparison

-Country Distribution



The Distribution of Parent Countries(Regions) of Foreign R&D Centers in Beijing



- America
- Europe
- Chinese Hongkong
- Others
- Japan
- Korea
- Chinese Taiwan

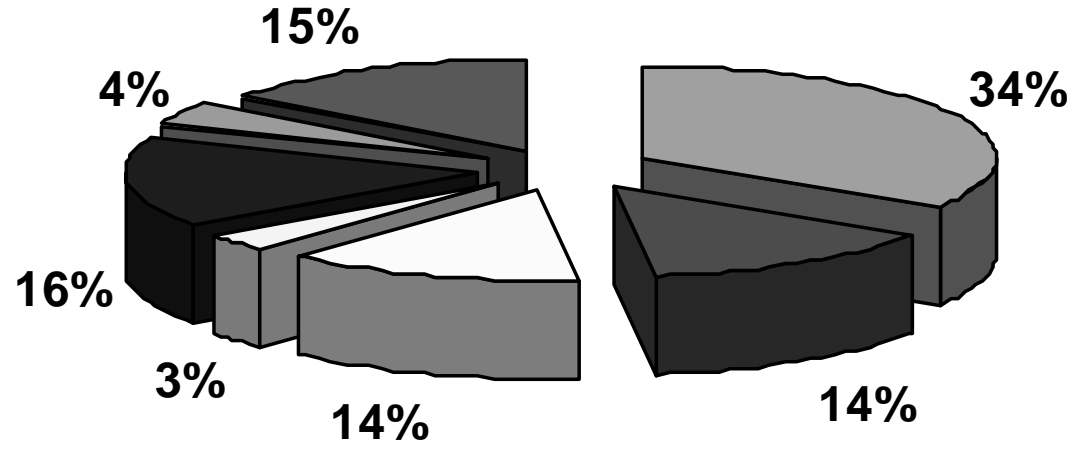
China University

Brief Comparison

-Country Distribution



The Distribution of Parent Countries(Regions) of Foreign R&D Centers in Shanghai



- | | |
|--------------------|------------------|
| ■ America | ■ Japan |
| □ Europe | □ Korea |
| ■ Chinese Hongkong | ■ Chinese Taiwan |
| ■ Others | |

University
China

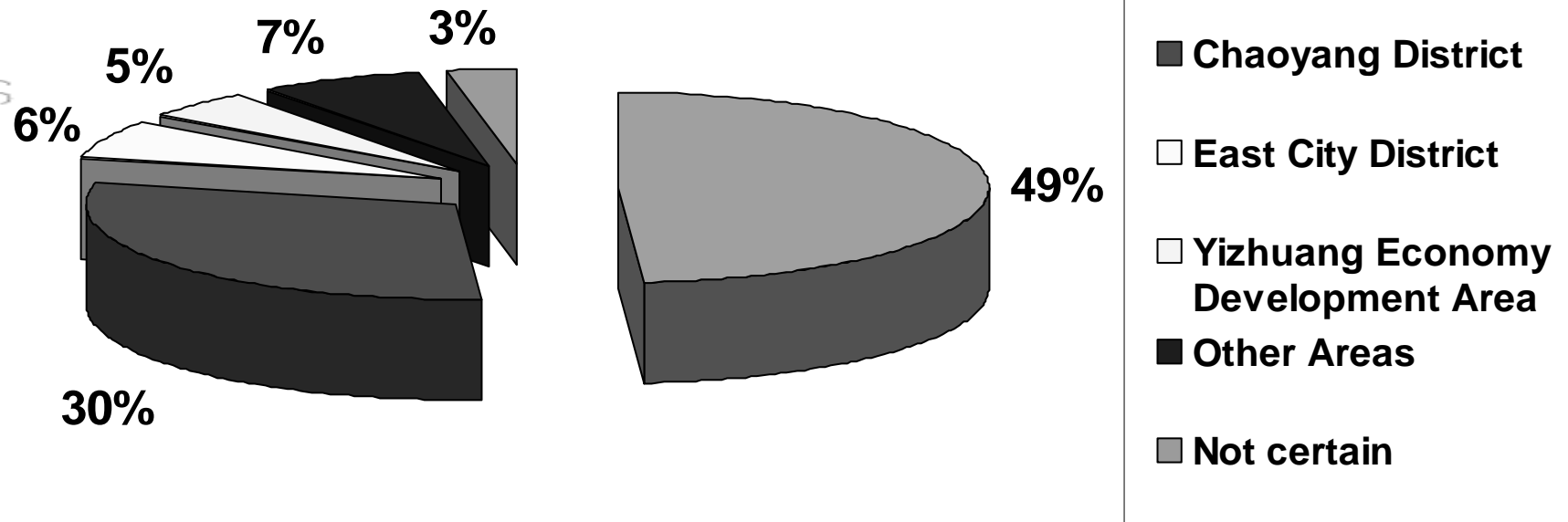
Brief Comparison

-Location Distribution



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The Distribution of Locations of Foreign R&D Centers in Beijing

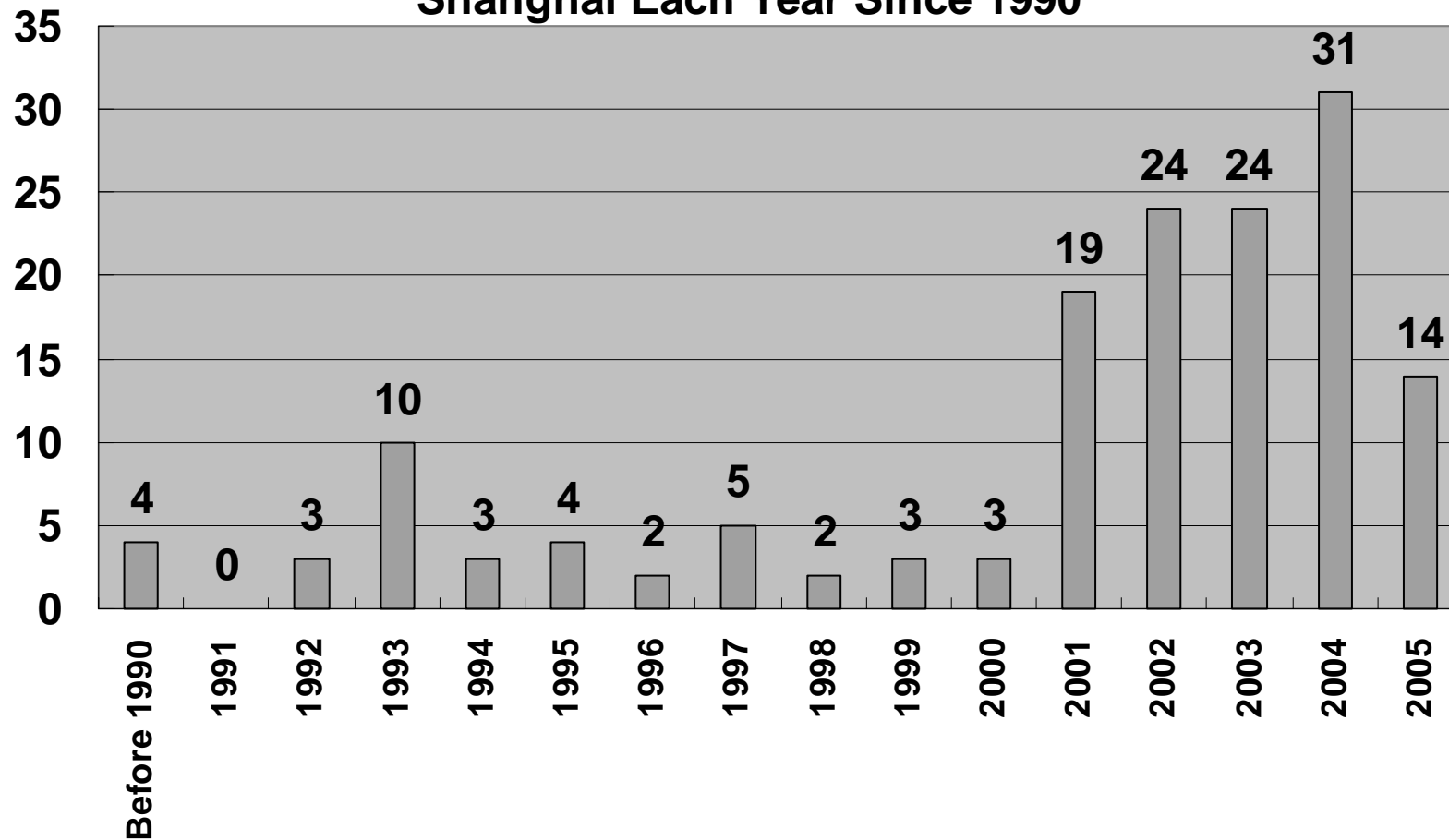


Brief Comparison

-The case of Shanghai



The Number of Newly-built Foreign R&D Centers in Shanghai Each Year Since 1990

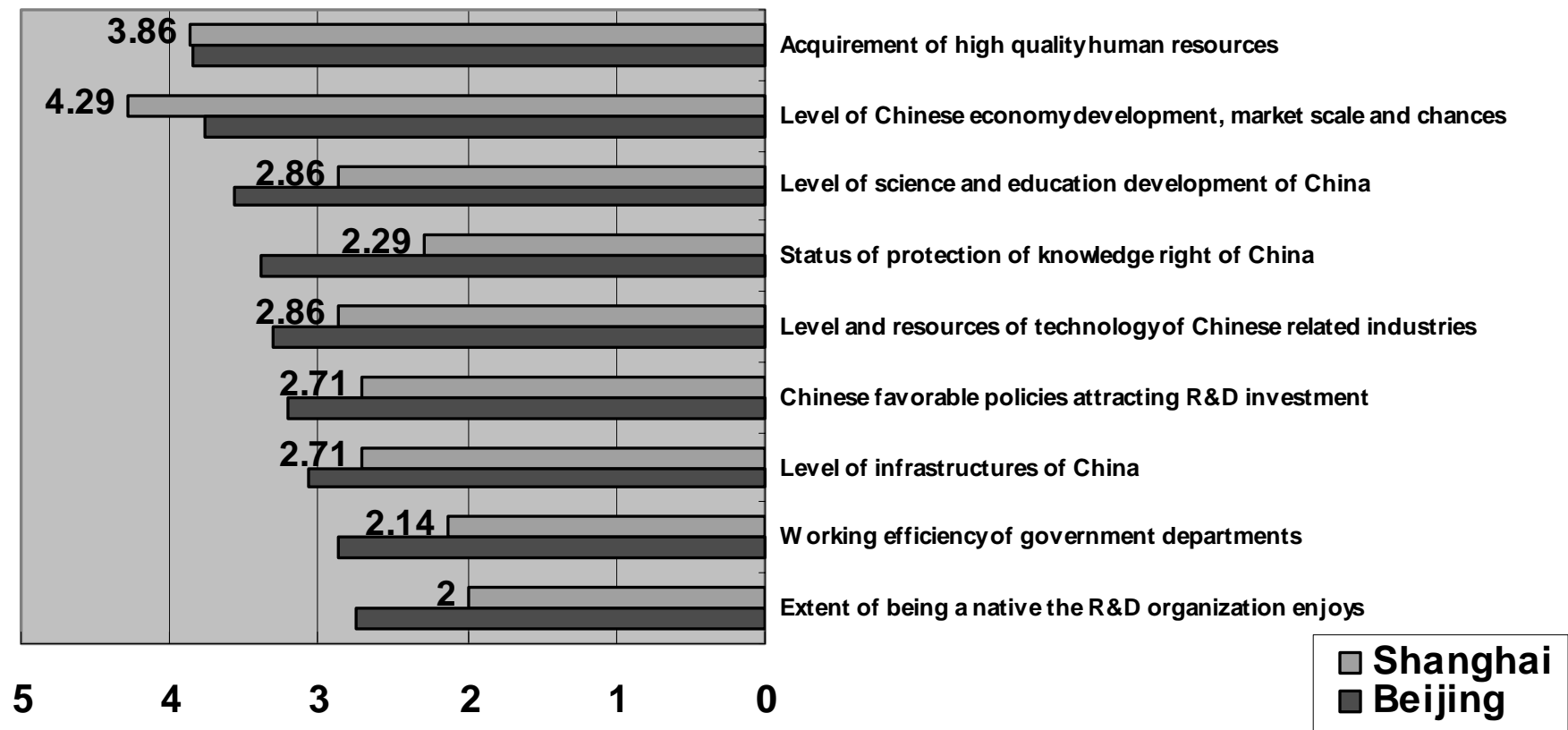


What attracts these R&D centers to Shanghai?



iversity

The importance of different factors which have impacts on MNCs' R&D investing decision in China



NOTE: Based on small sample surveys, may be not representative

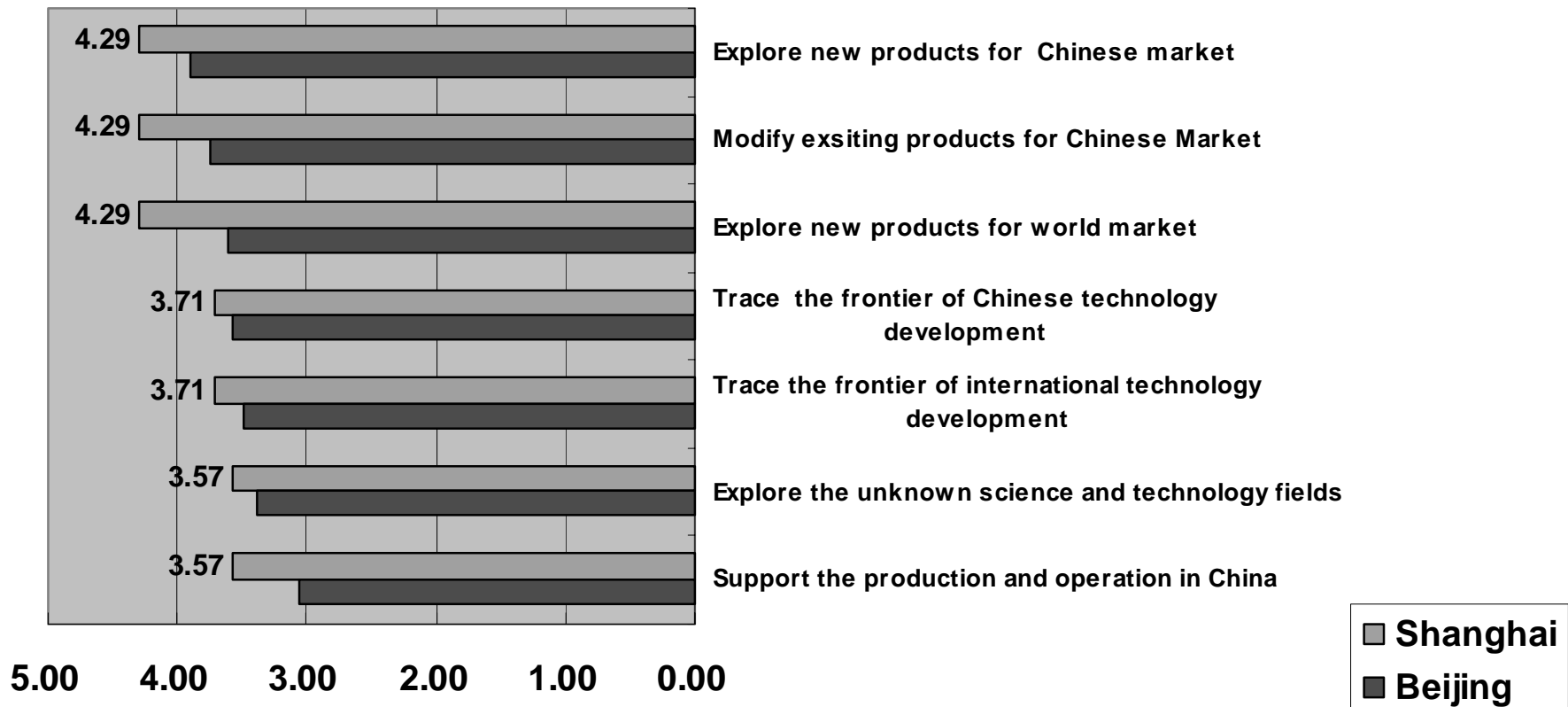
China

What are they doing here?



iversity

The importance of different objectives of the R&D centers' work(2004)



China In:

NOTE:Based on small sample surveys, may be not representative

Implications



- High quality S&T human resources and market opportunities are the most important factors drawing MNC R&D centers to China; The market potentials become more and more important in recently years
- While the number of MNC R&D centers has been increasing quickly, a high percentage of these R&D centers are still at the initial stage of their development process;
- Many of these centers behave more like enclaves in China, interacting mostly within the company's own network; the linkages with local companies are still weak.
- The differences on industrial distribution and orientation between the MNC R&D centers in Beijing and Shanghai, make the differences on their behaviors



Thank you!

Comments are welcome