



INTRODUCTION OF CHINESE ENTERPRISES' R&D ACTIVITY

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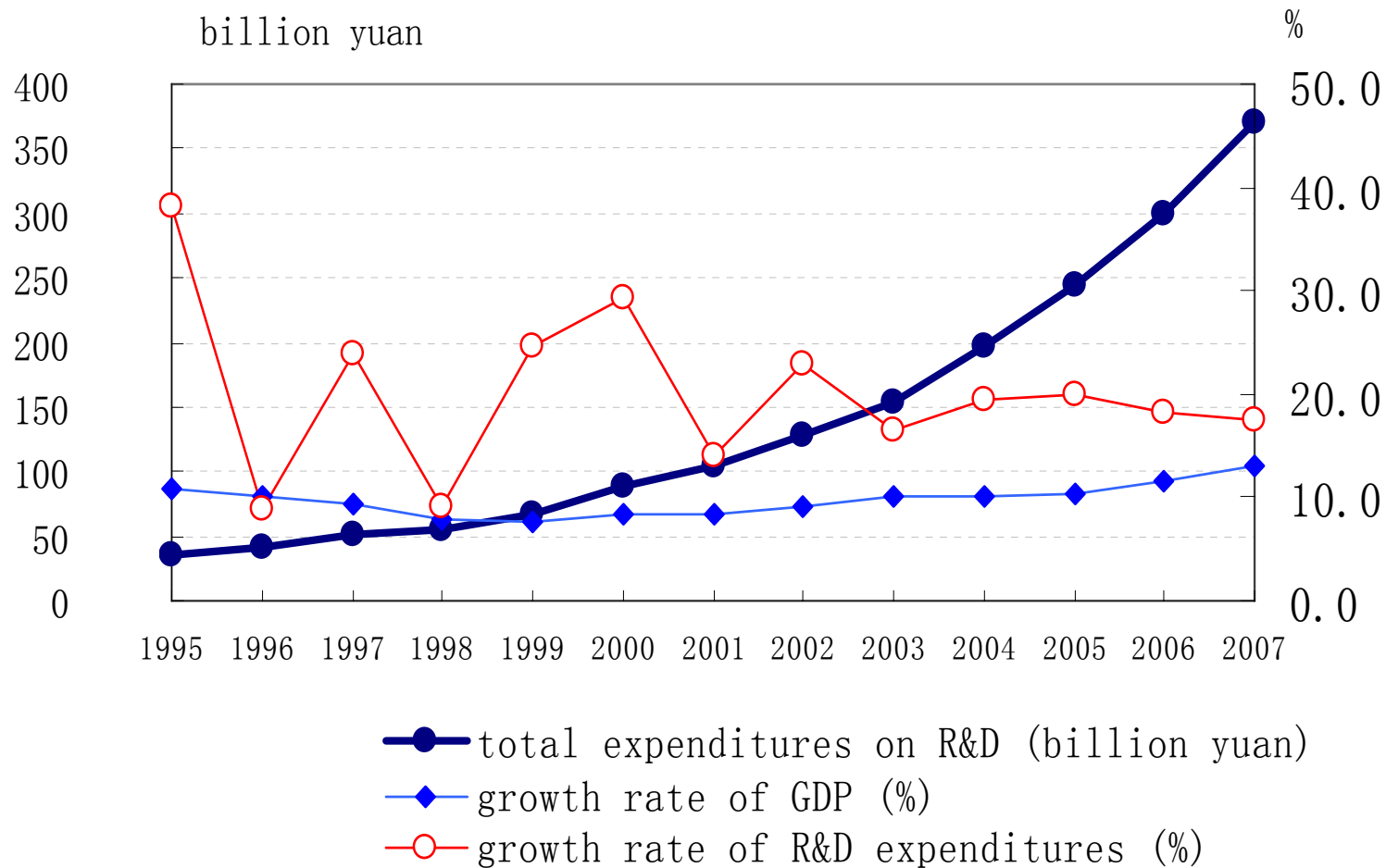
1. Motivation for this Joint Research

- Examine how the productivity of domestic firms is improved by their own R&D and export activities, as well as the spillover from foreign R&D and technology purchase.
- Investigate the effect of R&D spillover for different type of foreign enterprises, such as enterprises owned by Honkong, Maca, Taiwan or other Country.
- Explore the complementarities between firm's innovation effort such as R&D or technology assimilation activities and opportunities to access new technologies.



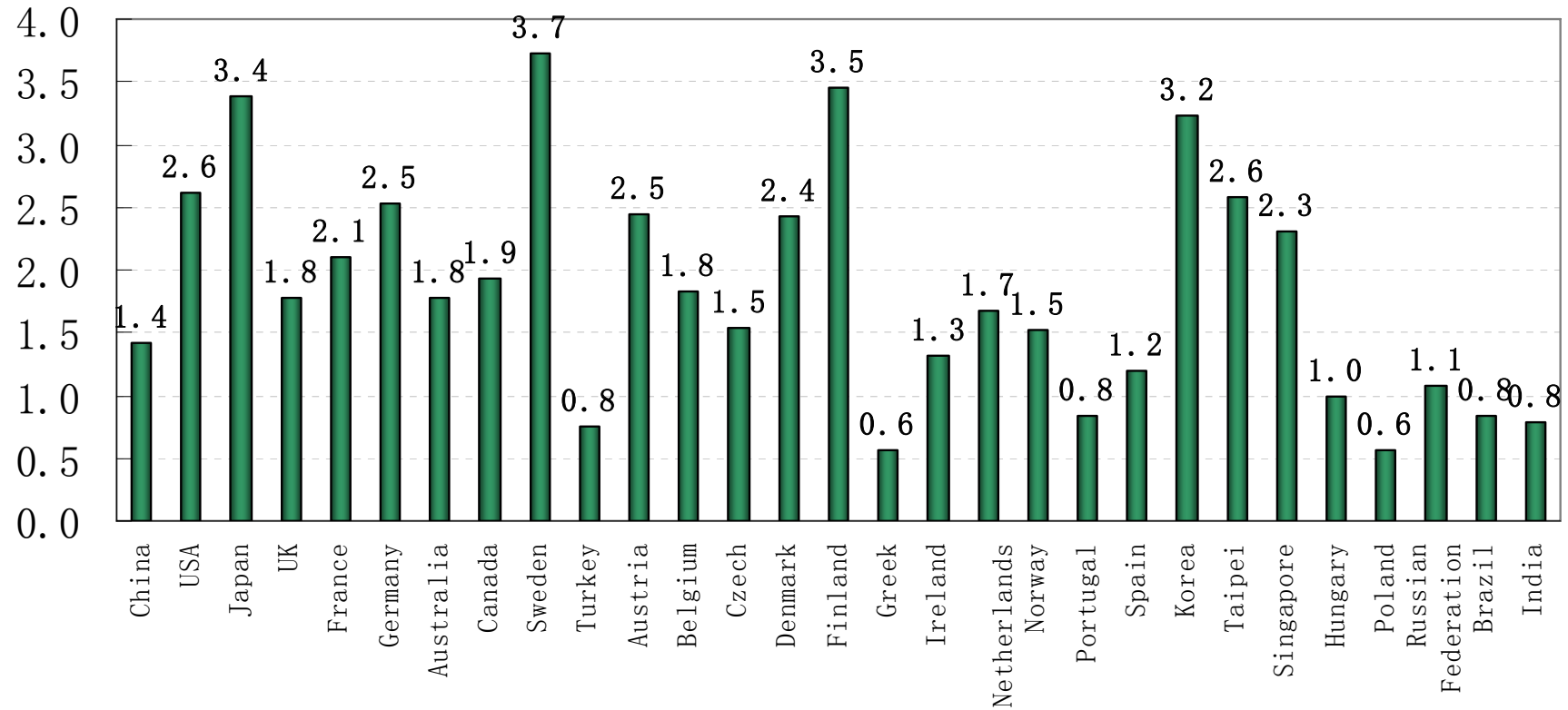
2. Introduction of China's R&D expenditure

(1) R&D expenditure will play an more and more important role in the development of economies





Percentage of R&D expenditure to GDP in 2006





(2) Expenditure on R&D by foreign firms grows faster than domestic firms

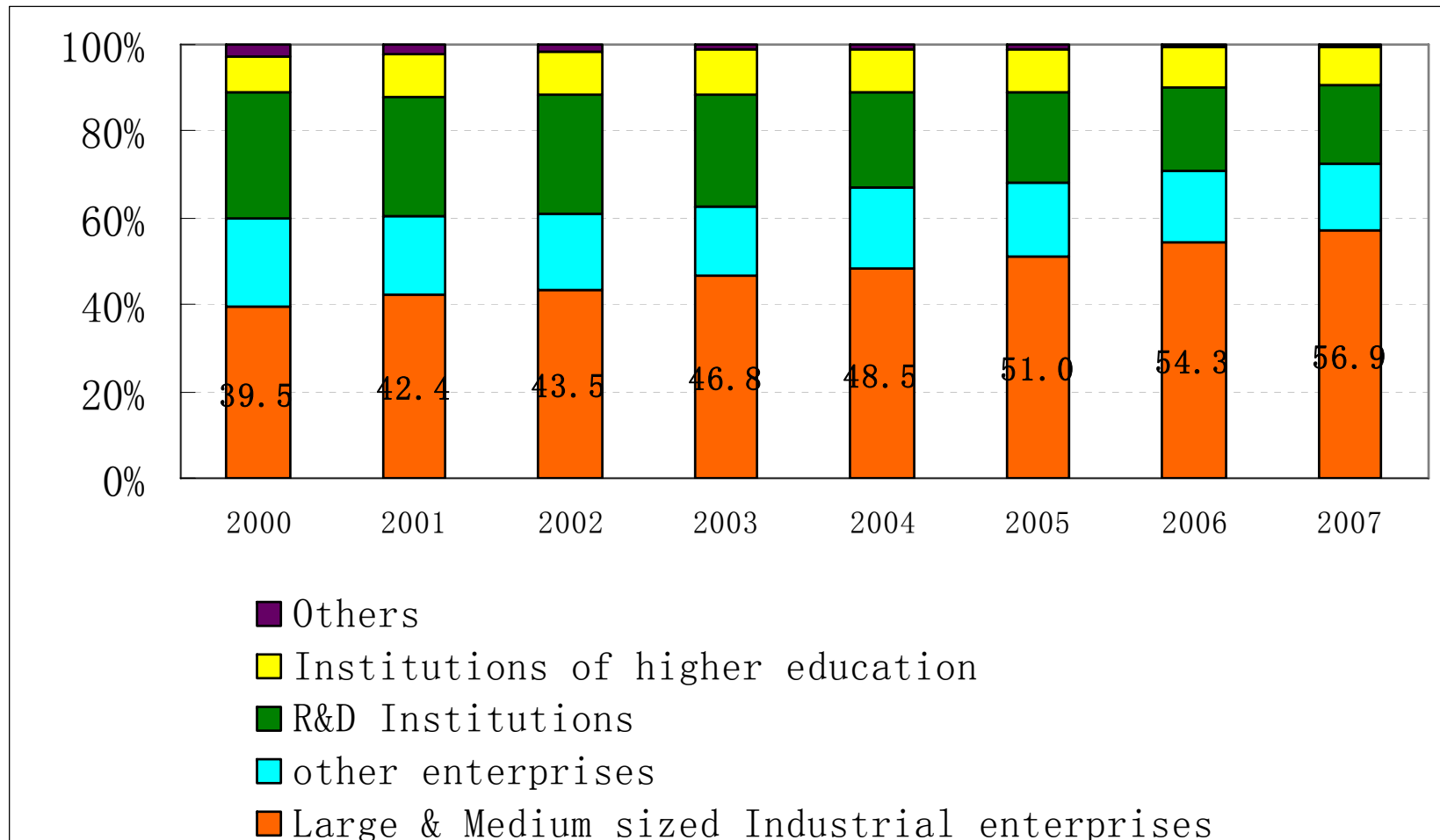
Share of R&D expenditure by group of enterprises

year	Enterprises with Funds from Hong Kong, Macao and Taiwan (Joint-venture Enterprises & Cooperation Enterprises)	Enterprises with Funds from Hong Kong, Macao and Taiwan (Enterprises with Sole Funds & Share-holding Corporations Ltd.)	foreign founded firms (Joint-venture Enterprises & Cooperation Enterprises)	foreign funded firm (Enterprises with Sole Funds & Share-holding Corporations Ltd.)	domestic-funded firms in total value of R&D expenditure	total
2000	3.8	3.7	8.7	2.8	81.0	100.0
2001	4.1	2.0	11.7	4.1	78.1	100.0
2002	3.7	3.3	9.9	5.3	77.8	100.0
2003	4.1	3.8	9.8	5.5	76.7	100.0
2004	3.9	3.8	12.1	8.5	71.7	100.0
2005	4.1	3.2	12.2	7.5	73.0	100.0
2006	3.7	5.0	10.4	8.7	72.3	100.0



(3) Large and Medium sized Industrial enterprises is the major source of R&D expenditure

Share of Expenditure on R&D by Performer





3. Classification of Chinese Industrial Enterprises

Composition of Gross Domestic Product

(%)

Year	Gross Domestic Product					
		Primary Industry	Secondary Industry		Tertiary Industry	
			Industry	Construction		
1978	100.0	28.2	47.9	44.1	3.8	23.9
1990	100.0	27.1	41.3	36.7	4.6	31.6
2000	100.0	15.1	45.9	40.4	5.6	39.0
2007	100.0	11.3	48.6	43.0	5.6	40.1



(2) Group of Industrial Enterprises

- State-owned and Non-state-owned Industrial Enterprises above Designated Size

276,474 enterprises in 2004 (\approx 20% of total firms)

has statistical data by NBS

produced about 90% output of industry sector

employed about 70% labor of industry sector

- Industrial Enterprises below Designated Size

1,098,709 enterprises in 2004)

- Designated Size —total sales revenue of industrial products larger than 5 million yuan



(3) Sub-group of State-owned and Non-state-owned Industrial Enterprises above Designated Size

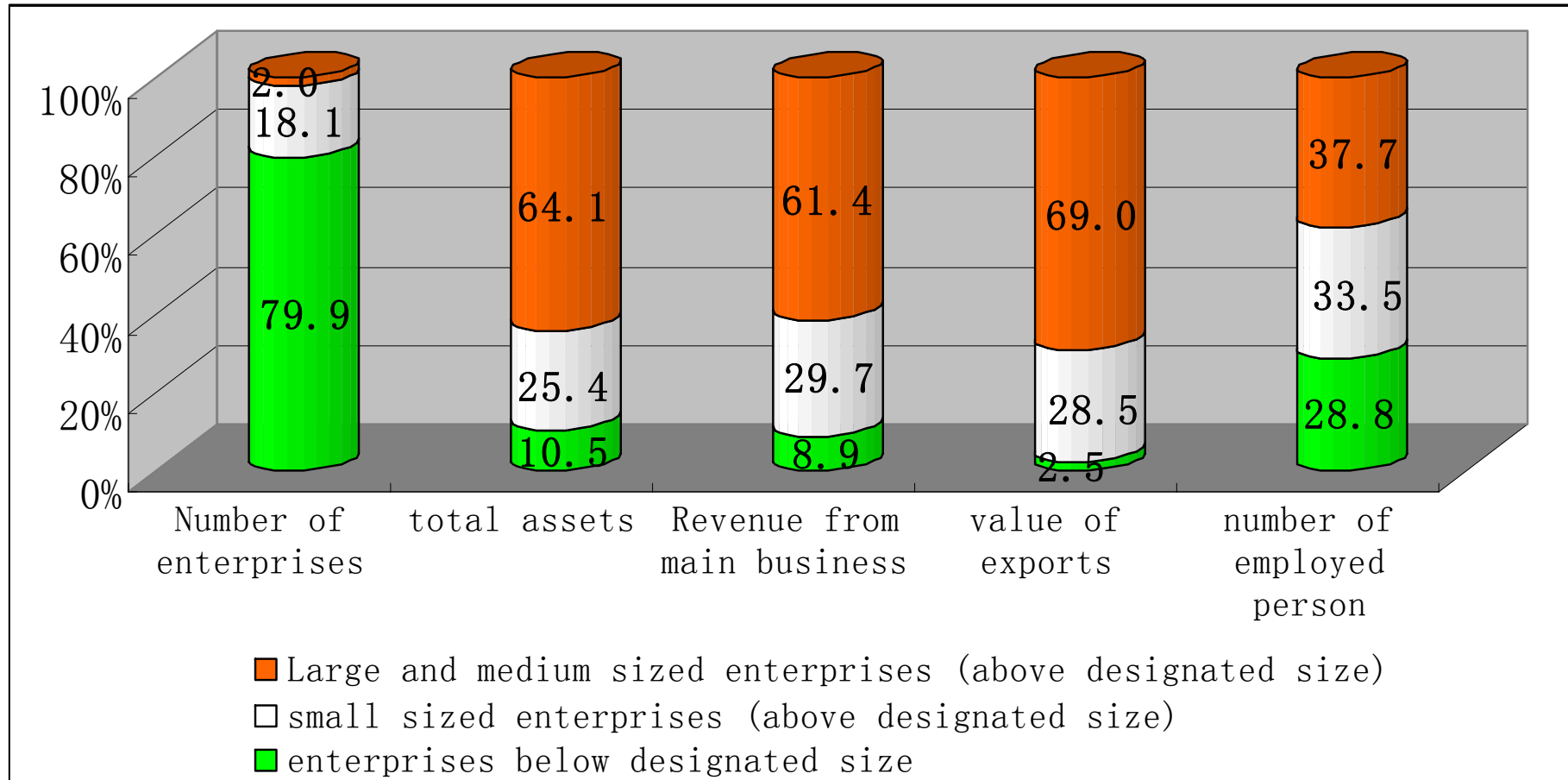
- Large and Medium size Enterprises

 - has R&D statistical data

 - 27,692 enterprises in 2004

 - ≥ 300 employer & sales revenue ≥ 0.3 billion yuan & assets ≥ 0.4 billion yuan

- Small size Enterprises





4. Data used in these research

- R&D input of Large and Medium size Enterprises
——Social and Scientific Bureau of National
Bureau of Statistics (NBS)
- Industry Statistics data ——Industry Statistical
Bureau of NBS



R&D data

- Each data can be identified by Industries (2 digit group, total 39 industries), regions (31 provinces), and resignation types
- each year has about 2500 observations, among which about 1000 observations for domestic enterprises
- Data year from 2000 to 2006
- Indicators include:



Group of Industrial Enterprises by Registration Status

Domestic Funded Enterprises	Enterprises with Funds from Hong Kong, Macao and Taiwan
State-owned Enterprises	Joint-venture Enterprises
Collective-owned Enterprises	Cooperative Enterprises
Cooperative Enterprises	Enterprises with Sole Fund
Joint Ownership Enterprises	Share-holding Corporations Ltd.
State Joint Ownership Enterprises	Foreign Funded Enterprises
Limited Liability Corporations	Joint-venture Enterprises
State Sole Funded Corporations	Cooperation Enterprises
Share-holding Corporations Ltd.	Enterprises with Sole Fund
Private Enterprises	Share-holding Corporations Ltd.
Other Enterprises	



Indicators

科技活动人员

高中级技术职称人员

无高中级技术职称的
大学本科及以上学历
人员

R&D人员

专利申请数

发明专利申请数

拥有发明专利数

Indicators

Personnel Engaged in S&T Activities

Researchers with Senior or
intermediate technical titles

without senior or intermediate
technical titles but with University
Bachelor degree or above degree

R&D Personnel

Patent Applications

Inventive Patent Applications

Owning Inventive Patent



科技活动经费支出总额	Expenditures on S&T Activities
内部支出合计	Intramural Expenditures on S&T Activities
R&D经费支出合计	Expenditure on R&D Activities 
R&D经费内部支出	Intramural Expenditures on R&D Activities
对院所及高校支出	Expenditure on University and Research institute
技术改造经费支出	Expenditure for Technical Renovation 
引进国外技术经费支出	Expenditures for Indraght of Technology from abroad 
引进技术的消化吸收经费支出	Expenditures for Absorb and Digest 
购买国内技术经费支出	Expenditure for Purchase of Domestic Technology 



Industry Statistics data (firm level-data)

- Each data can be identified by Industries (4 digit group), regions (31 provinces), and resignation types
- The data can be grouped accordance with the R&D data



Indicators

工业总产值

Gross industrial output value

资产总计

Total Assets

流动资产总计

Total working capitals

流动资产年平均余额

Annual Average Balance of Working Capitals

固定资产原价

Original Value of Fixed Assets

固定资产净值年平均余额

Annual Average Balance of Net value of Fixed assets

负债合计

total liabilities

流动负债合计

Total working liabilities

所有者权益

Owners Equity

主营业务收入

Revenue from Principal Business

主营业务成本

cost of principal business

主营业务税金及附加

Taxes and other charges on principal business

利润总额

Total Profits

应付增值税

Value Added tax payable

全部从业人员年平均人数

Annual Average Employed persons



5. some statistical results for the industrial R&D activity

(1) Share of R&D expenditure to Sales by group of enterprises different little

year	Enterprises with Funds from Hong Kong, Macao and Taiwan (Joint-venture Enterprises & Cooperation Enterprises)	Enterprises with Funds from Hong Kong, Macao and Taiwan (Enterprises with Sole Funds & Share-holding Corporations Ltd.)	foreign founded firms (Joint-venture Enterprises & Cooperation Enterprises)	foreign funded firm (Enterprises with Sole Funds & Share-holding Corporations Ltd.)	(domestic-funded firms' total value of R&D expenditure) / domestic-funded firms' total sales
2000	0.6	1.4	0.7	0.6	0.8
2001	0.7	0.5	0.9	0.6	0.9
2002	0.7	0.8	0.8	0.7	1.0
2003	0.7	0.6	0.7	0.5	0.9
2004	0.6	0.5	0.8	0.6	0.9
2005	0.8	0.4	0.9	0.5	0.9



(2) Growth of R&D and other related activity for domestic firms

Units:100 million yuan

	R&D	Expenditures for Technical Renovations	Expenditures for Indrought of Technology from abroad	Expenditures for Absorb and Digest	Expenditure for Purchase of Domestic Technology
2000	325.3	1053.7	193.1	15.1	24.5
2001	387.5	1172.2	203.6	15.3	34.5
2002	486.5	1378.6	268.0	20.6	40.5
2003	635.9	1752.9	292.5	16.5	50.0
2004	760.7	2292.6	198.7	37.3	64.2
2005	1014.3	2503.7	164.3	39.0	71.7
2006	1293.2	2689.2	191.1	64.7	74.9



Thank you for your attention !