Chinese Competitiveness: Where Does The Nation Stand?

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EMKT
Beijing, China
June 18, 2004


Further information on Professor Porter's work and the Institute for Strategy and Competitiveness is available at [www.isc.hbs.edu](http://www.isc.hbs.edu)
Perspectives on Firm Success

- Competitive advantage resides solely inside a company or in its industry
- Competitive success depends primarily on company choices
- Competitive advantage (or disadvantage) resides partly in the locations at which a company’s business units are based
- Cluster participation is an important contributor to competitiveness
Comparative Economic Performance
Real GDP Growth Rates

Countries sorted by 1998-2003 annual real GDP growth rate (CAGR)

Comparative Economic Performance
China versus Other Asian Economies

Compound annual growth rate of real GDP per capita, 1998-2003

GDP per capita (PPP adjusted) in US-$, 2003

Comparative Labor Productivity Performance
China versus Other Asian Economies

Compound annual growth rate (CAGR) of real GDP per employee, 1997-2002

GDP per employee (PPP adjusted) in US-$, 2002

Source: Groningen Centre (2004)
Unemployment Performance
Selected Asian Countries

Unemployment Rate, 2003

Change in the Unemployment Rate in Percentage Points, 1998-2003

-5% -4% -3% -2% -1% 0% 1% 2% 3% 4%

China

Philippines

India

Indonesia

Singapore

Malaysia

Vietnam

Myanmar

Thailand

China’s Export Performance
World Export Market Shares

World export share in %

China’s Goods Export Share by Cluster
1992-2001

Source: Institute for Strategy and Competitiveness, based on UNCTAD Trade Data.
China’s Position in International Trade

- China is becoming increasingly integrated into the international trading system, with both exports and imports growing strongly.

- China’s economy is developing significant positions in a broad portfolio of important international industries.

- China has significantly increased its imports from the Asian region:
  - The trade balance with Asia is neutral.
  - China and the other Asian countries become increasingly integrated.

- Large trade surpluses with the U.S. and Europe are danger signs if they do not moderate in the future:
  - Concerns about market openness, intellectual property, and exchange rate management will ultimately lead to political intervention, and artificial limits on imports will depress China’s economic growth.
Comparative Inward Foreign Investment
Selected Countries

FDI Stocks as % of GDP, Average 1999-2001

FDI Inflows as % of Gross Fixed Capital Formation, Average 1999-2001

FDI in China

• China has become the world’s **largest recipient of FDI** in the world economy*, with $52b in 2002

Drivers of China’s Inward FDI flows

• Establishing positions to serve the strongly growing **local market**
  – Examples include recent investments by retail company’s like Carrefour and many of the automotive companies

• The desire of companies not to “**miss China**”, given pressures from competitors and the **financial markets**

• Naiveté about the management and operational complexity **costs** of offshoring

• UNCTAD’s evaluation of China’s **inherent quality** as a location for FDI still ranks the country only at 40

• While there is little systematic data, many investors seem to earn **low or negative returns** on their investments in China

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*Luxembourg registers significantly higher values because financial transaction channeled through the country

China’s Economic Situation in 2004

• Strong economic growth continues despite the 2003 SARS crisis
  – Policies to avoid overheating of the economy are likely to moderate growth slightly below the current rate

• Chinese prosperity continues to rise strongly, but is still only slightly above the level of the poorer Asian countries
  – Significant reduction of poverty over recent years

• Productivity growth in the Chinese economy has been strong. Labor is shifting from agriculture and state-owned enterprises into the private economy. However, unemployment has risen.

• China continues to grow its position in the world economy, with an increasing export share and strong FDI. However, China’s international market integration is comparable to other developing countries.

• However, economic success is creating challenges to future success as wages and costs of doing business inevitably rise

• China’s success has been artificially inflated by the size of the home market rather than the true profitability of China as a place to invest

• To remain on its growth path, China needs a strategy to improve the microeconomic foundations of its economy to support higher levels of sustainable productivity
What is Competitiveness?

• Competitiveness is determined by the **productivity** with which a nation uses its human, capital, and natural resources. Productivity sets a nation’s or region’s standard of living (wages, returns to capital, returns to natural resource endowments)
  
  – Productivity depends both on the **value** of products and services (e.g. uniqueness, quality) as well as the **efficiency** with which they are produced.
  
  – It is not **what** industries a nation competes in that matters for prosperity, but **how** firms compete in those industries
  
  – Productivity in a nation is a reflection of what both domestic and foreign firms **choose to do in that location**. The location of ownership is secondary for national prosperity.
  
  – The productivity of “**local**” industries is of fundamental importance to competitiveness, not just that of traded industries
  
  – Devaluation **does not** make a country more competitive

• Nations compete in offering the **most productive environment** for business

• The public and private sectors play **different but interrelated roles** in creating a productive economy
Determinants of Productivity and Productivity Growth

Macroeconomic, Political, Legal, and Social Context for Development

Microeconomic Foundations of Development

- A sound macroeconomic, political, legal, and social context creates the potential for competitiveness, but is not sufficient.
- Competitiveness ultimately depends on improving the microeconomic capability of the economy and the sophistication of local companies and local competition.
Macroeconomic Policy

• China is not a traditional case of an overheating economy with high nominal but low real economic growth
  – Price inflation stands at 3.2%
  – Wage inflation is limited by significant unemployment and excess labor in agriculture and state-owned enterprises
    • The total of open and hidden unemployment is reported to be 23%, or 170m employees

• However, government policies are somewhat expansionary
  – The government deficit is at 2.5% of GDP, and some regions have been investing more heavily

• There are serious infrastructure bottlenecks in the coastal regions, and real estate price escalation
Legal and Governmental Institutions
China vs. Low Middle Income Countries

Percentage of Leading Country in the World, 2002

Source: World Bank, author’s calculations

GCR China 2003-20040528
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Successful economic development is a process of successive economic upgrading, in which the business environment in a nation evolves to support and encourage increasingly sophisticated ways of competing.

**Context for Firm Strategy and Rivalry**

- A local context and rules that encourage investment and sustained upgrading
  - e.g., Intellectual property protection
- Meritocratic incentive system across institutions
- Open and vigorous competition among locally based rivals

**Demand Conditions**

- Sophisticated and demanding local customer(s)
- Local customer needs that anticipate those elsewhere
- Unusual local demand in specialized segments that can be served regionally and globally

**Related and Supporting Industries**

- Access to capable, locally based suppliers and firms in related fields
- Presence of clusters instead of isolated industries

**Factor (Input) Conditions**

- Presence of high quality, specialized inputs available to firms
  - Human resources
  - Capital resources
  - Physical infrastructure
  - Administrative infrastructure
  - Information infrastructure
  - Scientific and technological infrastructure
  - Natural resources

- Access to capable, locally based suppliers and firms in related fields
- Presence of clusters instead of isolated industries

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The Cairns (Australia) Tourism Cluster

- Public Relations & Market Research Services
- Food Suppliers
- Property Services
- Maintenance Services

- Travel agents
- Tour operators
- Attractions and Activities (e.g., theme parks, casinos, sports)
- Restaurants
- Hotels
- Airlines, Cruise Ships

- Local retail, health care, and other services
- Local Transportation
- Souvenirs, Duty Free
- Banks, Foreign Exchange

- Government agencies (e.g., Australian Tourism Commission, Great Barrier Reef Authority)
- Educational Institutions (e.g., James Cook University, Cairns College of TAFE)
- Industry Groups (e.g., Queensland Tourism Industry Council)

Clusters and Competitiveness
Houston Oil and Gas Products and Services Cluster

Oil & Gas Exploration & Development

Oil & Gas Completion & Production

Oilfield Services/Engineering & Contracting Firms

Equipment Suppliers
(e.g. Oil Field Chemicals, Drilling Rigs, Drill Tools)

Specialized Technology Services
(e.g. Drilling Consultants, Reservoir Services, Laboratory Analysis)

Subcontractors
(e.g. Surveying, Mud Logging, Maintenance Services)

Business Services
(e.g. MIS Services, Technology Licenses, Risk Management)

Specialized Institutions
(e.g. Academic Institutions, Training Centers, Industry Associations)

Oil Trans- portation
Oil Trading
Oil Refining
Oil Distribution
Oil Wholesale Marketing
Oil Retail Marketing

Gas Gathering
Gas Processing
Gas Trading
Gas Transmission
Gas Distribution
Gas Marketing
Leading Footwear Clusters

**Portugal**
- Production
- Focus on short-production runs in the medium price range

**Italy**
- Design, marketing, and production of premium shoes
- Export widely to the world market

**United States**
- Design and marketing
- Focus on specific market segments like sport and recreational shoes and boots
- Manufacturing only in selected lines such as hand-sewn casual shoes and boots

**China**
- OEM Production
- Focus on low cost segment mainly for the US market

**Romania**
- Production subsidiaries of Italian companies
- Focus on lower to medium price range

**Vietnam/Indonesia**
- OEM Production
- Focus on the low cost segment mainly for the European market

Institutions for Collaboration
Selected Massachusetts Organizations, Life Sciences

**Life Sciences Industry Associations**
- Massachusetts Biotechnology Council
- Massachusetts Medical Device Industry Council
- Massachusetts Hospital Association

**University Initiatives**
- Harvard Biomedical Community
- MIT Enterprise Forum
- Biotech Club at Harvard Medical School
- Technology Transfer offices

**General Industry Associations**
- Associated Industries of Massachusetts
- Greater Boston Chamber of Commerce
- High Tech Council of Massachusetts

**Informal networks**
- Company alumni groups
- Venture capital community
- University alumni groups

**Economic Development Initiatives**
- Massachusetts Technology Collaborative
- Mass Biomedical Initiatives
- Mass Development
- Massachusetts Alliance for Economic Development

**Joint Research Initiatives**
- New England Healthcare Institute
- Whitehead Institute For Biomedical Research
- Center for Integration of Medicine and Innovative Technology (CIMIT)
Global Competitiveness Report 2003
The Relationship Between Business Competitiveness and GDP Per Capita

Note: Selected Asian countries in blue
Source: Global Competitiveness Report 2003
GCR China 2003-20040528

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The measured quality of China’s business environment would support a significantly higher GDP per capita. This “underperformance” is typical of many Asian countries and signals strong growth potential. For China, the business environment data may also be skewed by the country’s richer coastal regions.

However, China still lags many of its Asian neighbors in overall business environment quality.

Key weaknesses in the Chinese business environment are present in areas such as the context for competition, capital markets, physical infrastructure, and human resources.
### Business Competitiveness Rankings
#### Asian Countries in 2003

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Singapore</td>
<td>8</td>
<td>12</td>
<td>4</td>
<td>21</td>
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<tr>
<td>Japan</td>
<td>13</td>
<td>6</td>
<td>20</td>
<td>17</td>
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<tr>
<td>Taiwan</td>
<td>16</td>
<td>16</td>
<td>16</td>
<td>20</td>
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<tr>
<td>Hong Kong SAR</td>
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<td>Korea</td>
<td>23</td>
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<td>25</td>
<td>29</td>
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<tr>
<td>Malaysia</td>
<td>26</td>
<td>26</td>
<td>24</td>
<td>44</td>
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<tr>
<td>Thailand</td>
<td>31</td>
<td>31</td>
<td>32</td>
<td>51</td>
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<tr>
<td>India</td>
<td>37</td>
<td>40</td>
<td>36</td>
<td>76</td>
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<tr>
<td>China</td>
<td>46</td>
<td>42</td>
<td>44</td>
<td>64</td>
</tr>
<tr>
<td>Vietnam</td>
<td>50</td>
<td>53</td>
<td>48</td>
<td>80</td>
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<tr>
<td>Sri Lanka</td>
<td>57</td>
<td>52</td>
<td>58</td>
<td>72</td>
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<td>Indonesia</td>
<td>60</td>
<td>62</td>
<td>60</td>
<td>75</td>
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<tr>
<td>Philippines</td>
<td>64</td>
<td>48</td>
<td>71</td>
<td>67</td>
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<tr>
<td>Bangladesh</td>
<td>86</td>
<td>86</td>
<td>85</td>
<td>84</td>
</tr>
</tbody>
</table>

Source: Global Competitiveness Report 2003
China’s Competitiveness Agenda

- Address key productivity barriers in the Chinese business environment
- Adopt a cluster-based approach to economic development
- Improve China’s potential for innovation
- Create economic strategies at the regional and city level
- Shift the roles of government, business, and other institutions in economic development

- Upgrading the microeconomic foundations of sustainable prosperity in China
## Company Operations and Strategy
### China’s Relative Position 2002

### Competitive Advantages
Relative to GDP per Capita

<table>
<thead>
<tr>
<th>Category</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity for Innovation</td>
<td>25</td>
</tr>
<tr>
<td>Control of International Distribution</td>
<td>25</td>
</tr>
<tr>
<td>Company Spending on R&amp;D</td>
<td>28</td>
</tr>
<tr>
<td>Extent of Branding</td>
<td>30</td>
</tr>
<tr>
<td>Breadth of International Markets</td>
<td>33</td>
</tr>
</tbody>
</table>

Country Ranking, Arrows indicate a change of 5 or more ranks since 1998.

### Competitive Disadvantages
Relative to GDP per Capita

<table>
<thead>
<tr>
<th>Category</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extent of Marketing</td>
<td>73</td>
</tr>
<tr>
<td>Prevalence of Foreign Technology Licensing</td>
<td>67</td>
</tr>
<tr>
<td>Nature of Competitive Advantage</td>
<td>56</td>
</tr>
<tr>
<td>Extent of Staff Training</td>
<td>54</td>
</tr>
<tr>
<td>Value Chain Presence</td>
<td>54</td>
</tr>
<tr>
<td>Degree of Customer Orientation</td>
<td>50</td>
</tr>
<tr>
<td>Reliance on Professional Management</td>
<td>50</td>
</tr>
<tr>
<td>Extent of Regional Sales</td>
<td>49</td>
</tr>
<tr>
<td>Extent of Incentive Compensation</td>
<td>48</td>
</tr>
<tr>
<td>Production Process Sophisticiation</td>
<td>46</td>
</tr>
<tr>
<td>Willingness to Delegate Authority</td>
<td>43</td>
</tr>
</tbody>
</table>

Country Ranking, Arrows indicate a change of 5 or more ranks since 1998.

Note: Rank by countries; overall China ranks 46 (42 on Company Operations and Strategy, 64 on GDP pc 2002)

Source: Global Competitiveness Report 2003
Context for Firm Strategy and Rivalry

China’s Relative Position

### Competitive Advantages Relative to GDP per Capita

Country Ranking, Arrows indicate a change of 5 or more ranks since 1998

<table>
<thead>
<tr>
<th>Factor</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Extent of Locally Based Competitors</td>
<td>7</td>
</tr>
<tr>
<td>Decentralization of Corporate Activity</td>
<td>24</td>
</tr>
<tr>
<td>Intensity of Local Competition</td>
<td>24</td>
</tr>
<tr>
<td>Extent of Distortive Government Subsidies</td>
<td>25</td>
</tr>
<tr>
<td>Centralization of Economic Policy-making</td>
<td>28</td>
</tr>
<tr>
<td>Favoritism in Decisions of Government</td>
<td>40</td>
</tr>
<tr>
<td>Officials</td>
<td></td>
</tr>
<tr>
<td>Business Costs of Corruption</td>
<td>41</td>
</tr>
</tbody>
</table>

### Competitive Disadvantages Relative to GDP per Capita

Country Ranking, Arrows indicate a change of 5 or more ranks since 1998

<table>
<thead>
<tr>
<th>Factor</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Existence of Bankruptcy Law</td>
<td>81</td>
</tr>
<tr>
<td>Regulation of Securities Exchanges</td>
<td>80</td>
</tr>
<tr>
<td>Protection of Minority Shareholders</td>
<td>78</td>
</tr>
<tr>
<td>Foreign Ownership of Companies</td>
<td>75</td>
</tr>
<tr>
<td>Tariff Liberalization</td>
<td>71</td>
</tr>
<tr>
<td>Hidden Trade Barrier Liberalization</td>
<td>63</td>
</tr>
<tr>
<td>Prevalence of mergers and acquisitions</td>
<td>56</td>
</tr>
<tr>
<td>Intellectual Property Protection</td>
<td>55</td>
</tr>
<tr>
<td>Effectiveness of Anti-Trust Policy</td>
<td>48</td>
</tr>
<tr>
<td>Cooperation in Labor-Employer Relations</td>
<td>48</td>
</tr>
<tr>
<td>Efficacy of Corporate Boards</td>
<td>47</td>
</tr>
</tbody>
</table>

Note: Rank by countries; overall China ranks 46 (44 on National Business Environment, 64 on GDP pc 2002)

Source: Global Competitiveness Report 2003
Corruption
Transparency International Global Corruption Report

Note: Asian countries in blue, constant country sample
Source: Global Corruption Report, 2003
### Competitive Advantages Relative to GDP per Capita

Country Ranking, Arrows indicate a change of 5 or more ranks since 1998

<table>
<thead>
<tr>
<th>Factor</th>
<th>Rank</th>
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<tbody>
<tr>
<td>University/Industry Research Collaboration</td>
<td>20 ↑</td>
</tr>
<tr>
<td>Quality of Scientific Research Institutions</td>
<td>28 ↓</td>
</tr>
<tr>
<td>Railroad Infrastructure Quality</td>
<td>36</td>
</tr>
<tr>
<td>Administrative Burden for Start-Ups</td>
<td>36</td>
</tr>
<tr>
<td>Local Equity Market Access</td>
<td>42 ↑</td>
</tr>
<tr>
<td>Police Protection of Businesses</td>
<td>44 ↓</td>
</tr>
<tr>
<td>Quality of Math and Science Education</td>
<td>44</td>
</tr>
</tbody>
</table>

### Competitive Disadvantages Relative to GDP per Capita

Country Ranking, Arrows indicate a change of 5 or more ranks since 1998

<table>
<thead>
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<th>Factor</th>
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</thead>
<tbody>
<tr>
<td>Extent of Bureaucratic Red Tape</td>
<td>95 ↓</td>
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<tr>
<td>Ease of Access to Loans</td>
<td>71</td>
</tr>
<tr>
<td>Financial Market Sophistication</td>
<td>71</td>
</tr>
<tr>
<td>Quality of Management Schools</td>
<td>69</td>
</tr>
<tr>
<td>Availability of Scientists and Engineers</td>
<td>67</td>
</tr>
<tr>
<td>Air Transport Infrastructure Quality</td>
<td>66 ↑</td>
</tr>
<tr>
<td>Quality of Electricity Supply</td>
<td>59</td>
</tr>
<tr>
<td>Cell phones per 100 people (2002)</td>
<td>59</td>
</tr>
<tr>
<td>Judicial Independence</td>
<td>58 ↑</td>
</tr>
<tr>
<td>Internet users per 100 people (2002)</td>
<td>56</td>
</tr>
<tr>
<td>Telephone/Fax Infrastructure Quality</td>
<td>56</td>
</tr>
<tr>
<td>Quality of Public Schools</td>
<td>56</td>
</tr>
<tr>
<td>Venture Capital Availability</td>
<td>55 ↓</td>
</tr>
</tbody>
</table>

Note: Rank by countries; overall China ranks 46 (44 on National Business Environment, 64 on GDP pc 2002)

Source: Global Competitiveness Report 2003
## Factor (Input) Conditions
### China’s Relative Position (Continued)

### Competitive Advantages
**Relative to GDP per Capita**

Country Ranking, Arrows indicate a change of 5 or more ranks since 1998

- Patents per million Population (2002): 55
- Overall Infrastructure Quality: 53
- Port Infrastructure Quality: 50
- Quality of Educational System: 48
- Adequacy of Public Sector Legal Recourse: 47

### Competitive Disadvantages
**Relative to GDP per Capita**

Country Ranking, Arrows indicate a change of 5 or more ranks since 1998

- Patents per million Population (2002): 55
- Overall Infrastructure Quality: 53
- Port Infrastructure Quality: 50
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**Source:** Global Competitiveness Report 2003
Demand Conditions
China’s Relative Position

Competitive Advantages
Relative to GDP per Capita

Government Procurement of Advanced Technology Products 8
Buyer Sophistication 41 ↑

Competitive Disadvantages
Relative to GDP per Capita

Consumer Adoption of Latest Products 61
Stringency of Environmental Regulations 54
Presence of Demanding Regulatory Standards 52
Laws Relating to Information Technology 49

Country Ranking, Arrows indicate a change of 5 or more ranks since 1998

Note: Rank by countries; overall China ranks 46 (44 on National Business Environment, 64 on GDP pc 2002)
Source: Global Competitiveness Report 2003
WTO Accession and China’s Business Environment

- Reduction of average **tariff rates** to 10% by 2005
- Removal of all **quantitative trade restrictions**
- Transparent and automatic licensing of foreign companies in many **service** sectors, including banking, telecommunications, etc.
- Non-discrimination rules for **foreign investors**, including end to mandatory technology transfer requirements
- Enforcement of foreign **intellectual property rights**
- Elimination of **export subsidies** not allowed by WTO- rules
- Participation in the **WTO arbitration** mechanisms
- **MFN access** to all other WTO member markets

- First annual review of compliance in December 2003 showed China to be **on track** to deliver on its commitments
China’s Competitiveness Agenda

• Address key productivity barriers in the Chinese business environment

• **Adopt a cluster-based approach to economic development**

• Improve China’s potential for innovation

• Create economic strategies at the regional and city level

• Shift the roles of government, business, and other institutions in economic development
The Role of Clusters in Economic Development

Overview

• Clusters are **critical drivers of prosperity and innovation** in national and regional economies
  – The health of the cluster strongly influences the level of productivity that companies can achieve
  – Regional prosperity depends on significant positions across a number of competitive clusters

• A focus on clusters reveals the **opportunities** and **constraints** in the business environment
  – Overall economic development efforts gravitate to cross-cutting areas such as taxes and trade protection that affect all companies

• Clusters provide a **new way of thinking** about an economy and organizing economic development efforts
  – More aligned with the nature of competition and microeconomic factors that influence competitive advantage
  – Bring together firms of all sizes to identify common opportunities, not just common problems
  – Recast the roles of the private sector, government, trade associations and educational and research institutions in economic development
Related and Supporting Industries
China’s Relative Position

Competitive Advantages
Relative to GDP per Capita

- Local Availability of Components and Parts 6
- Local Availability of Process Machinery 6
- Extent of Product and Process Collaboration
- State of Cluster Development 29
- Local Supplier Quantity 32
- Local Availability of Specialized Research and Training Services

Competitive Disadvantages
Relative to GDP per Capita

- Local Supplier Quality 45

Country Ranking, Arrows indicate a change of 5 or more ranks since 1998

Note: Rank by countries; overall China ranks 46 (44 on National Business Environment, 64 on GDP pc 2002)
Source: Global Competitiveness Report 2003
The Yangtze River Telecommunications Cluster

• The Yangtze River Delta has become home to a wide array of manufacturers in telecommunication equipment
  – The cluster has been the focus of economic policy since the mid-1980s

• The cluster has benefited from access to low cost, well educated labor, the presence of related electronics manufacturing clusters, strong infrastructure, and a quickly growing market

• The cluster is increasingly moving to serve domestic demand and more domestically-owned companies are emerging

• The challenge for the cluster is to move from being a production site to becoming a more advanced center for production and products
  – For example, local universities are poorly linked to companies in the cluster

Source: HBS Student team (Hall, Narasimhan, Stokes, Wallace, Wiger), 2004
The Costa Rica Information Technology Cluster

- **Specialized Packaging** (e.g., plastics, corrugated materials)
- **Specialized Chemicals**
- **Electronic Assembly**
  - **Other Electronic Components** (e.g., circuitboards)
    - **Passive Electronic Components** (e.g., inductors, transistors)
- **Semiconductor Production**
- **Computer Software** (e.g., ArtinSoft)
- **Venture Capital Firms**
- **Specialized Academic and Training Institutions** (e.g., Instituto Tecnológico de Costa Rica, Instituto Nacional de Aprendizaje)
- **State Government Agencies** (e.g., export and investments promotion agencies: Cinde and Procomer)

Source: Niels Ketelhohn research for Professor Michael E. Porter
The Australian Wine Cluster
Trade Performance

Australian Wine Exports in million US Dollars

Australian Wine World Export Market Share

Source: UN Trade Statistics
The Australian Wine Cluster History

1930
First oenology course at Roseworthy Agricultural College

1955
Australian Wine Research Institute founded

1965
Australian Wine Bureau established

1970
Winemaking school at Charles Sturt University founded

1980
Australian Wine and Brandy Corporation established

1990
Winemaker’s Federation of Australia established

1991 to 1998
New organizations created for education, research, market information, and export promotions

1950s
Import of European winery technology

1960s
Recruiting of experienced foreign investors, e.g. Wolf Bass

1970s
Continued inflow of foreign capital and management

1980s
Creation of large number of new wineries

1990s
Surge in exports and international acquisitions

Cluster Policy versus Industrial Policy

**Industrial Policy**

- Target desirable industries / sectors
- Focus on domestic companies
- Intervene in competition (e.g., protection, industry promotion, subsidies)
- Centralize decisions at the national level

**Cluster-based Policy**

- All clusters can contribute to prosperity
- Domestic and foreign companies both enhance productivity
- Relax impediments and constraints to productivity
- Emphasize cross-firm and cross-industry linkages / complementarities
- Encourage initiative at the state and local level

**Distort competition**

**Enhance competition**
China’s Competitiveness Agenda

- Address key productivity barriers in the Chinese business environment
- Adopt a cluster-based approach to economic development
- **Improve China’s potential for innovation**
- Create economic strategies at the regional and city level
- Shift the roles of government, business, and other institutions in economic development
International Patenting Output
Selected Countries

U.S. patents granted in 2003

International Patenting Output
Selected Countries

Annual U.S. patents per 1 million population, 2003

United States
Japan
Switzerland
Sweden
Finland
Germany
Canada
France
Germany
South Korea
Denmark
Austria
Norway
Austria
Ireland
China
Singapore
India
Norway


Copyright 2004 © Professor Michael E. Porter
International Patenting Output
Selected Asian Countries

Annual U.S. patents per 1 million population, 2003


Copyright 2004 © Professor Michael E. Porter
# Chinese International Patenting by Institution
## U.S. Patents

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Note: Shading indicates universities, research institutions, and other government agencies
Source: US Patent and Trademark Office
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Source: US Patent and Trademark Office
## Korean International Patenting by Institution
### U.S. Patents

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Note: Shading indicates universities, research institutions, and other government agencies
Source: US Patent and Trademark Office
National Innovative Capacity
China’s Rankings

Competitive Advantages Relative to GDP per Capita

- **Science and Technology Base**
  - University/Industry Research Collaboration: 20 (↑)
  - Quality of Scientific Research Institutions: 28 (↓)
  - Local Availability of Specialized Research and Training Services: 38

Competitive Disadvantages Relative to GDP per Capita

- **Human Resource Base**
  - Quality of Management Schools: 69
  - Availability of Scientists and Engineers: 67
  - Quality of Public Schools: 56
  - Quality of Educational System: 48

- **Regulations and Incentives**
  - Intellectual Property Protection: 55
  - Stringency of Environmental Regulations: 54
  - Presence of Demanding Regulatory Standards: 52
  - Laws Relating to Information Technology: 49

Note: China ranks 62 on GDP pc in 2002
Source: Global Competitiveness Report 2003
China’s Competitiveness Agenda

• Address key productivity barriers in the Chinese business environment

• Adopt a cluster-based approach to economic development

• Improve China’s potential for innovation

• Create economic strategies at the regional and city level

• Shift the roles of government, business, and other institutions in economic development
Influences on Competitiveness

Multiple Geographic Levels

- World Economy
- Broad Economic Areas
- Groups of Neighboring Nations
- Nations
- States, Provinces
- Cities, Metropolitan Areas
Regional Prosperity in China

GDP per capita in 1’000 Renminbi, 2002

Note: 1 Renminbi = 0.12 US-$
Specialization of Regional Economies

Select U.S. Geographic Areas

- **Seattle-Bellevue-Everett, WA**
  - Aerospace Vehicles and Defense
  - Fishing and Fishing Products
  - Analytical Instruments

- **San Francisco-Oakland-San Jose Bay Area**
  - Communications Equipment
  - Agricultural Products
  - Information Technology

- **Los Angeles Area**
  - Apparel
  - Building Fixtures, Equipment and Services
  - Entertainment

- **San Diego**
  - Leather and Sporting Goods
  - Power Generation
  - Education and Knowledge Creation

- **Wichita, KS**
  - Aerospace Vehicles and Defense
  - Heavy Machinery
  - Oil and Gas

- **Chicago**
  - Communications Equipment
  - Processed Food
  - Heavy Machinery

- **Pittsburgh, PA**
  - Construction Materials
  - Metal Manufacturing
  - Education and Knowledge Creation

- **Boston**
  - Analytical Instruments
  - Education and Knowledge Creation
  - Communications Equipment

- **Raleigh-Durham, NC**
  - Communications Equipment
  - Information Technology
  - Education and Knowledge Creation

- **Atlanta, GA**
  - Construction Materials
  - Transportation and Logistics
  - Business Services

- **Houston**
  - Heavy Construction Services
  - Education and Knowledge Creation

- **Pittsburgh, PA**
  - Construction Materials
  - Metal Manufacturing
  - Education and Knowledge Creation

Note: Clusters listed are the three highest ranking clusters in terms of share of national employment

Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
Traded Specialization of Regional Economies
Atlanta Metro Area

Percentage Share of National Cluster Employment in 2001

- Transportation and Logistics
  - 4.2, 77.5

Percentage Change, 1990–2001

- Heavy Construction Services
- Distribution Services
- Business Services
- Financial Services
- Education and Knowledge Creation
- Publishing and Printing
- Plastics
- IT
- Hospitality and Tourism
- Automotive
- Entertainment
- Processed Food

Atlanta’s Average Share = 1.9%

Note: Uses narrow cluster definitions to avoid overlap
Source: Cluster Mapping Project, Institute for Strategy and Competitiveness, Harvard Business School
China’s Competitiveness Agenda

• Address key productivity barriers in the Chinese business environment

• Adopt a cluster-based approach to economic development

• Improve China’s potential for innovation

• Create economic strategies at the regional and city level

• Shift the roles of government, business, and other institutions in economic development
Shifting Responsibilities for Economic Development

Old Model

- Government drives economic development through policy decisions and incentives

New Model

- Economic development is a collaborative process involving government at multiple levels, companies, teaching and research institutions, and institutions for collaboration
Roles of Government in Economic Development

• Improve the macroeconomic, political, legal, and social context
  – Establish a **stable and predictable** macroeconomic, legal, and political environment
  – Improve the **social conditions** of citizens

• Upgrade the general business environment
  – Improve the availability, quality, and efficiency of **cross-cutting or general purpose inputs, infrastructure, and institutions**
  – Set **overall rules and incentives** governing competition that encourage productivity growth

• Facilitate cluster formation and upgrading
  – Identify **existing and emerging clusters**
  – Convene and participate in the identification of **cluster constraints** and **action plans** to address them

• Lead a collaborative process of economic change
  – Create institutions and **processes for upgrading competitiveness** that inform citizens and mobilize the private sector, government at all levels, educational and other institutions, and civil society to take action
Role of the Private Sector in Economic Development

• Take an active role in upgrading the local infrastructure
• Nurture local suppliers and attract new supplier investments
• Work closely with local educational and research institutions to upgrade quality and create specialized programs addressing cluster needs
• Provide government with information and substantive input on regulatory issues and constraints bearing on cluster development
• Focus corporate philanthropy on enhancing the local business environment

• An important role for trade associations
  – Greater influence
  – Cost sharing
China’s Competitiveness Agenda

- Address key productivity barriers in the Chinese business environment
- Adopt a cluster-based approach to economic development
- Improve China’s potential for innovation
- Create economic strategies at the regional and city level
- Shift the roles of government, business, and other institutions in economic development

- Upgrading the microeconomic foundations of sustainable prosperity in China
Selected References on Clusters, Competition, Innovation, and Regional Economies

Professor Michael E. Porter

Selected References on Clusters, Competition, Innovation, and Regional Economies
Professor Michael E. Porter

Backup
In the post-1978 reform period, China registered solid TFP growth. More recent estimates indicate TFP growth rates between 2% - 4% for the late 1990s. This performance is no surprise given the massive shift from agriculture to industry. Agriculture (and transportation/telecommunication) had the strongest sectoral TFP growth according to one study.

China’s Economy in Perspective

• While China has been growing strongly over the last two decades, it still has a long **way to go**

• Despite its impressive growth and its huge population, China’s **total GDP** is at roughly 25% of the U.S. or EU level and at less than 50% of the Japanese level

• Despite its impressive growth in exports, China’s share of the **world export market** is below that of countries like the UK and France

• While China has become the largest recipient of inward FDI*, it’s **FDI level** is at roughly 35% of GDP which is similar to the region and to the average of developing economies overall

• Chinese prosperity measured by GDP per capita remains relatively low, despite some improvement of key social indicators

*Luxembourg registers significantly higher values because financial transaction channeled through the country

Weakness in the Chinese Business Environment

Financial markets

• Private sector companies have relied heavily on internal financing or foreign investors

• Banks (state-owned) have traditionally propped up inefficient government-owned companies, although reforms are occurring
  – Share of non-performing loans estimated to be 25% - 50%

Competition

• The intensity of rivalry in China is high, though many rules and regulations still tilt the playing field among companies
  – State-owned companies are supported to avoid social hardship and foreign companies are forced to make concessions
  – These goals can over time be only achieved in fair competition in an adequate policy environment

• The full implementation of China’s WTO commitments is critical to remove these imbalances
Decomposing Chinese GDP per Capita Growth

Contribution to change in real GDP per Capita (PPP adjusted)

Ease of Business Formation
Asian Countries

Cost of Business Formation relative to GDP per capita

Simple world average: 94%

Labor Market Regulation
Asian Countries

Stringency of Labor Market Regulation, (0-100)

Simple world average: 52.1

The Chinese Fireworks Cluster

- China is the **world’s largest producer and exporter** of fireworks. The cluster employs 600,000 people and is worth $1.2bn per year. The cluster earns $400 million per year in exports and accounts for 90% of the world trade in fireworks. Four regions produce the majority of fireworks in China. Several have a history of making fireworks going back over a thousand years.

- Historically safety has been poor characterized by **frequent explosions causing many deaths**. The industry relies heavily on child labor.

- Liuyang City in Hunan Province imposed **strict safety standards**, raising the cost of opening a factory by 50%. The city invested $60 million in technical upgrades and closed 10,000 small workshops that didn’t meet the new standards. However, production thrived and the area now **accounts for 60% of exports**.

- Jiangxi province, China’s second largest producer, declared all fireworks production would cease in 2004 following a deadly blast in 2002.

- In January 2004, the State Council adopted industrial **safety regulations** requiring three-year renewable licenses for mines, construction, chemical, fireworks, and explosives firms.