



Forecasting Leading High Technology Sectors in China

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Challenges for U.S.-Based Firms**

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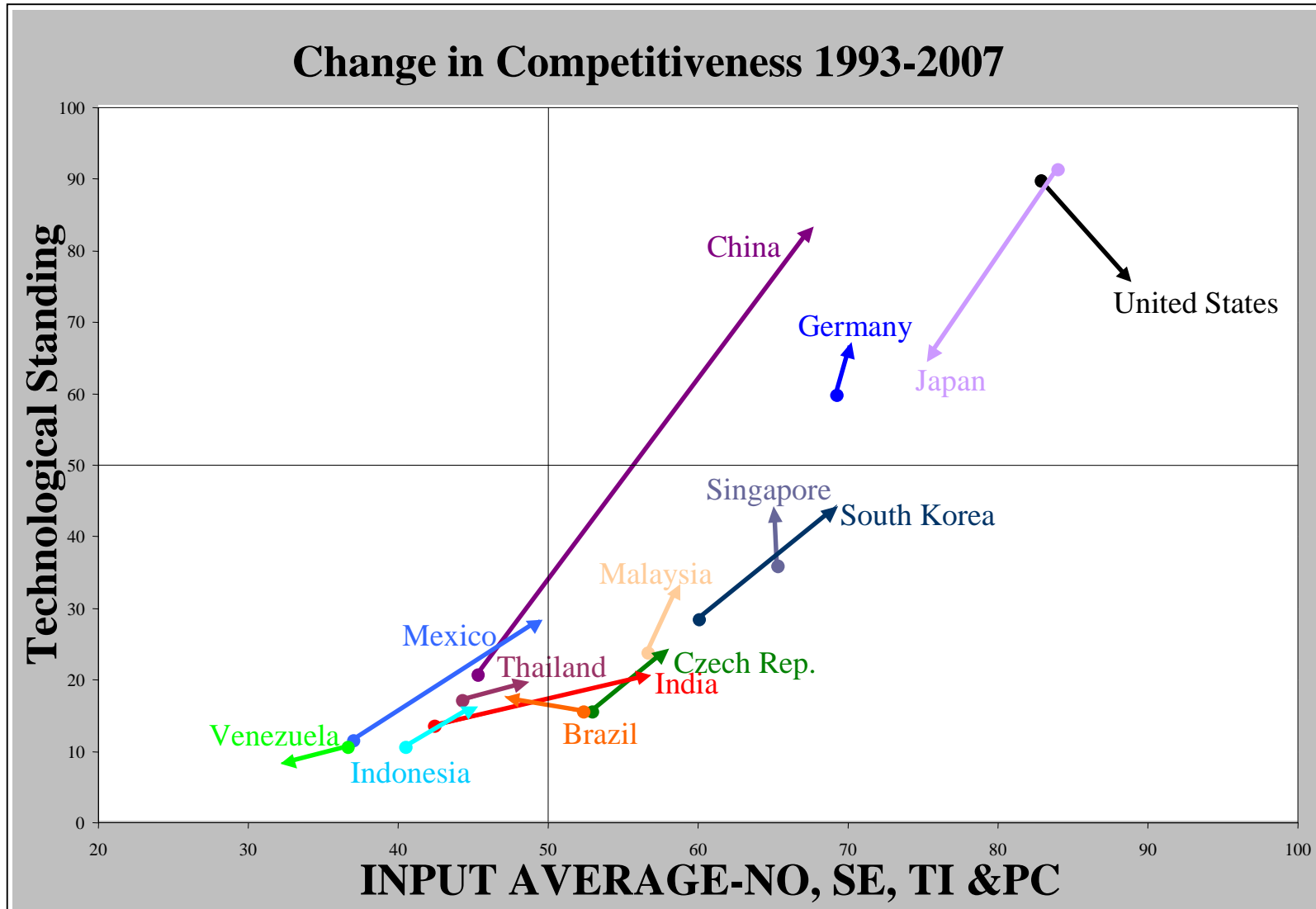


Background:

High Technology Indicators (HTI)

- Georgia Tech's HTI Project started in 1986
 - Indicator data collected every three years (now every two years)
 - Data cover 33 countries
 - Goal: To provide policy-makers and others with a means to gauge present high technology competitiveness & likely future high technology competitiveness of Industrializing & Industrialized Countries
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HTI Results Overview





Looking Back: What does this mean?

- China Growth in High Tech Exports
 - 1992: \$12,252,557,000
 - 2005: \$367,910,530,000
 - » (Includes Hong Kong with re-exports and inter Hong Kong/China trade removed)
 - Perspective: US Growth in High Tech Exports
 - 1992: \$157,064,114,000
 - 2005: \$368,079,086,000
 - High Tech defined as
 - SITC Revision 2 codes 51, 52, 54, 58, 712, 713, 714, 716, 718, 75, 76, 772, 776, 792, 87, and 88
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Looking Back: China's Growth in Export Sectors

SITC	Description	% Change 2000-2005
51	Organic chemicals	318%
52	Inorganic chemicals	265%
54	Medicinal and pharmaceutical products	211%
58	Artificial resins and plastic materials, and cellulose esters etc	487%
712	Steam engines, turbines	965%
713	Internal combustion piston engines, and parts thereof	378%
714	Engines and motors, non-electric; parts	325%
716	Rotating electric plant and parts thereof	230%

SITC	Description	% Change 2000-2005
718	Other power generating machinery and parts thereof	267%
75	Office machines and automatic data processing equipment	594%
76	Telecommunications, sound recording and reproducing	486%
772	Electrical apparatus for making and breaking electrical circuits	331%
776	Thermionic, microcircuits, transistors, valves, etc	381%
792	Aircraft and associated equipment, and parts thereof	139%
87	Professional, scientific, controlling instruments, apparatus	650%
88	Photographic equipment and supplies, optical goods; watches, etc	149%

Ratio of Imports to Exports

SITC	Description	Export/Imports CHINA (2005)	Export/Imports US (2005)
51	Organic chemicals	0.35	0.69
52	Inorganic chemicals	3.13	0.73
54	Medicinal and pharmaceutical products	1.64	0.66
58	Artificial resins and plastic materials, and cellulose esters etc	0.17	1.62
712	Steam engines, turbines	0.17	1.70
713	Internal combustion piston engines, and parts thereof	0.49	0.71
714	Engines and motors, non-electric; parts	0.23	1.97
716	Rotating electric plant and parts thereof	1.09	0.62

SITC	Description	Export/Imports CHINA (2005)	Export/Imports US (2005)
718	Other power generating machinery and parts thereof	0.25	0.65
75	Office machines and automatic data processing equipment	3.09	0.47
76	Telecommunications, sound recording and reproducing	3.23	0.29
772	Electrical apparatus for making and breaking electrical circuits	0.61	0.87
776	Thermionic, microcircuits, transistors, valves, etc	0.21	1.81
792	Aircraft and associated equipment, and parts thereof	0.11	3.01
87	Professional, scientific, controlling instruments, apparatus	0.41	1.26
88	Photographic equipment and supplies, optical goods; watches, etc	0.91	0.62

Precursors to High Tech Competitiveness

Leading indicators of technological competitiveness
Selected Countries

2007

Country	National orientation	Socioeconomic infrastructure	Technological Infrastructure	Productive capacity
Brazil	55.1	50.3	36.6	46.5
China	62.6	61.2	60.0	85.2
Czech Republic	69.2	63.0	40.6	58.1
Germany	72.8	69.3	63.0	74.8
India	64.6	55.1	44.4	63.1
Indonesia	54.9	48.5	30.7	46.5
Japan	75.7	71.2	68.8	87.2
Malaysia	76.0	67.9	31.9	58.3
Mexico	59.0	50.7	34.5	53.4
Singapore	76.9	76.5	43.5	63.0
South Korea	77.1	81.3	48.1	70.5
United States	78.0	87.9	95.5	93.4
Venezuela	33.5	40.6	22.5	32.2

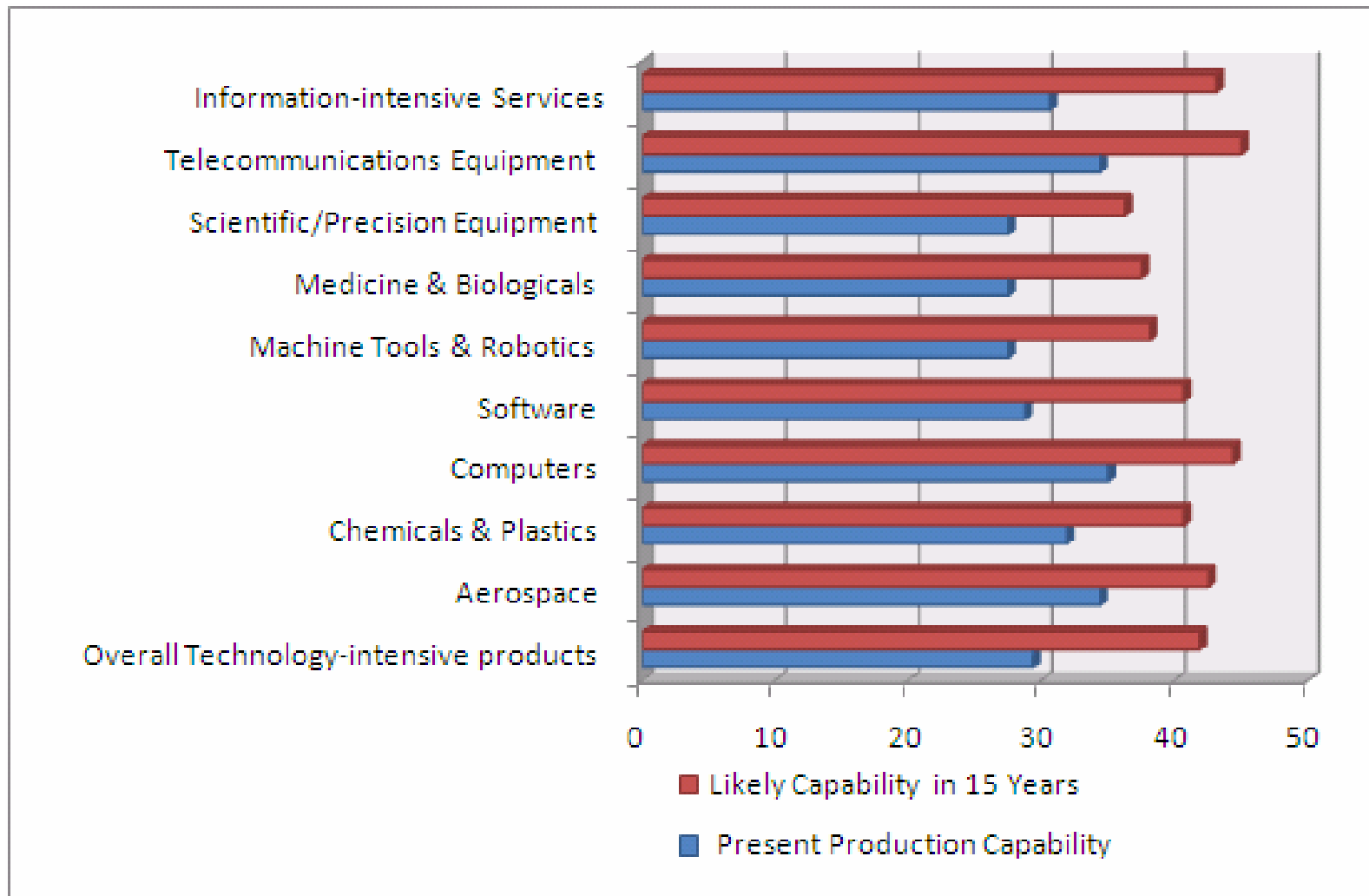


To put it in Perspective

Leading indicators of technological competitiveness 1993 and 2007				
1993				
Country	National orientation	Socioeconomic infrastructure	Technological Infrastructure	Productive capacity
China	62.3	46.4	38.6	33.2
United States	78.4	87.0	96.1	88.1
2007				
Country	National orientation	Socioeconomic infrastructure	Technological Infrastructure	Productive capacity
China	62.6	61.2	60.0	85.2
United States	78.0	87.9	95.5	93.4



Future Prospects for China





What does this mean?

- In China, between 1993 and 2007
 - The number of scientist and engineers engaged in R&D has more than doubled.
 - Secondary school enrollment has almost doubled.
 - Tertiary school enrollment has increased nearly ten fold.
 - Annual purchases of electronic data processing equipment have increased over 30X.
 - There have been increases in Capital Mobility, Foreign Direct Investment, Quality of Skilled Labor, Scientific Capability, Intellectual Property Capability, Management Capability and Technological Mastery.





In other words...

- China has made great strides since 1993. These efforts have yielded a high tech export capability that is world class.
- However, China still has quite a bit of room to grow.
- Meaning that the competitive landscape will probably look very different in 15 years.

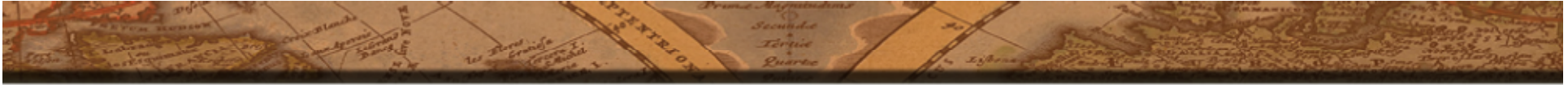




Resources

- See High Tech Indicators at: [//tpac.gatech.edu](http://tpac.gatech.edu)
- See also “Papers” at the website [tpac.gatech.edu]
- Contact:
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Thank You!

