



"Global Value Chains, Industrial Upgrading and Governance: A Comparison of Mexico, China and India"

Gary Gereffi

Duke University

Center on Globalization, Governance & Competitiveness

<http://www.cggc.duke.edu>

ggere@soc.duke.edu

Seminario Internacional
Innovación Tecnológica y Rentas Económicas en las Redes Globales de
Producción: Un Enfoque desde las Estrategias de Desarrollo

El Colegio de México

6 de Marzo de 2008, Ciudad de México

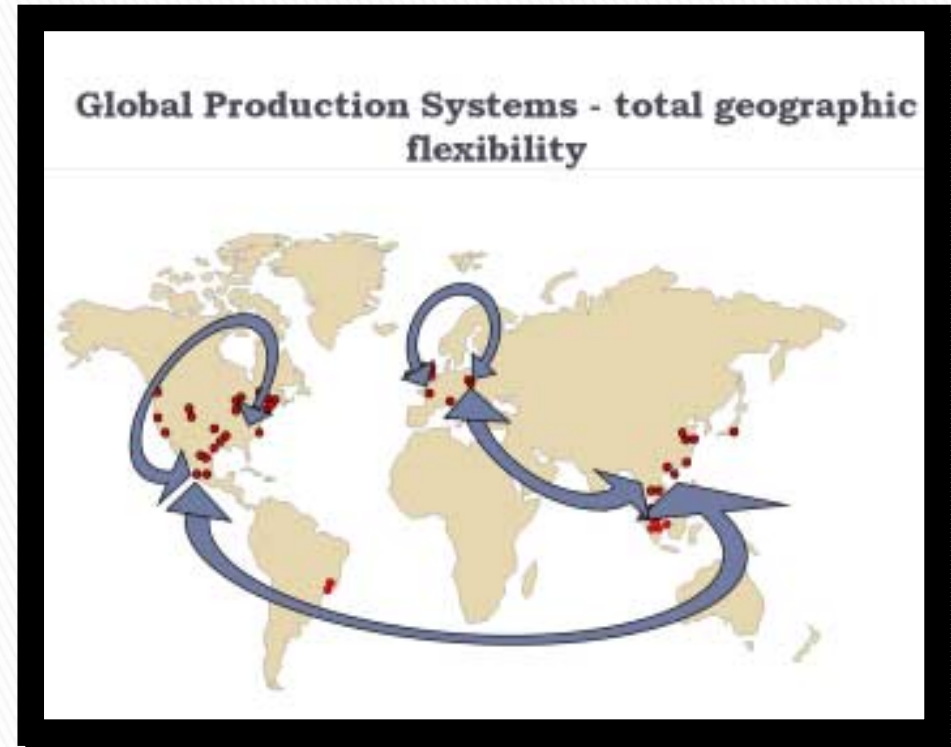
Agenda

1. Global Value Chain Analysis and Industrial Upgrading
2. Comparing International Upgrading Trajectories
3. Case Studies: China Vs Mexico
4. Textiles and IT in India
5. Global Production Networks and Governance

*1. Global Value Chain Analysis
and Industrial Upgrading*

Global Value Chains

- ▶ Global perspective – not just US-centric
- ▶ Organization of entire industries: raw materials to production to retail
- ▶ Linkages across firms and countries – coordination and integration
- ▶ Upgrading, especially for developing countries
- ▶ Power in the chain (drivers)

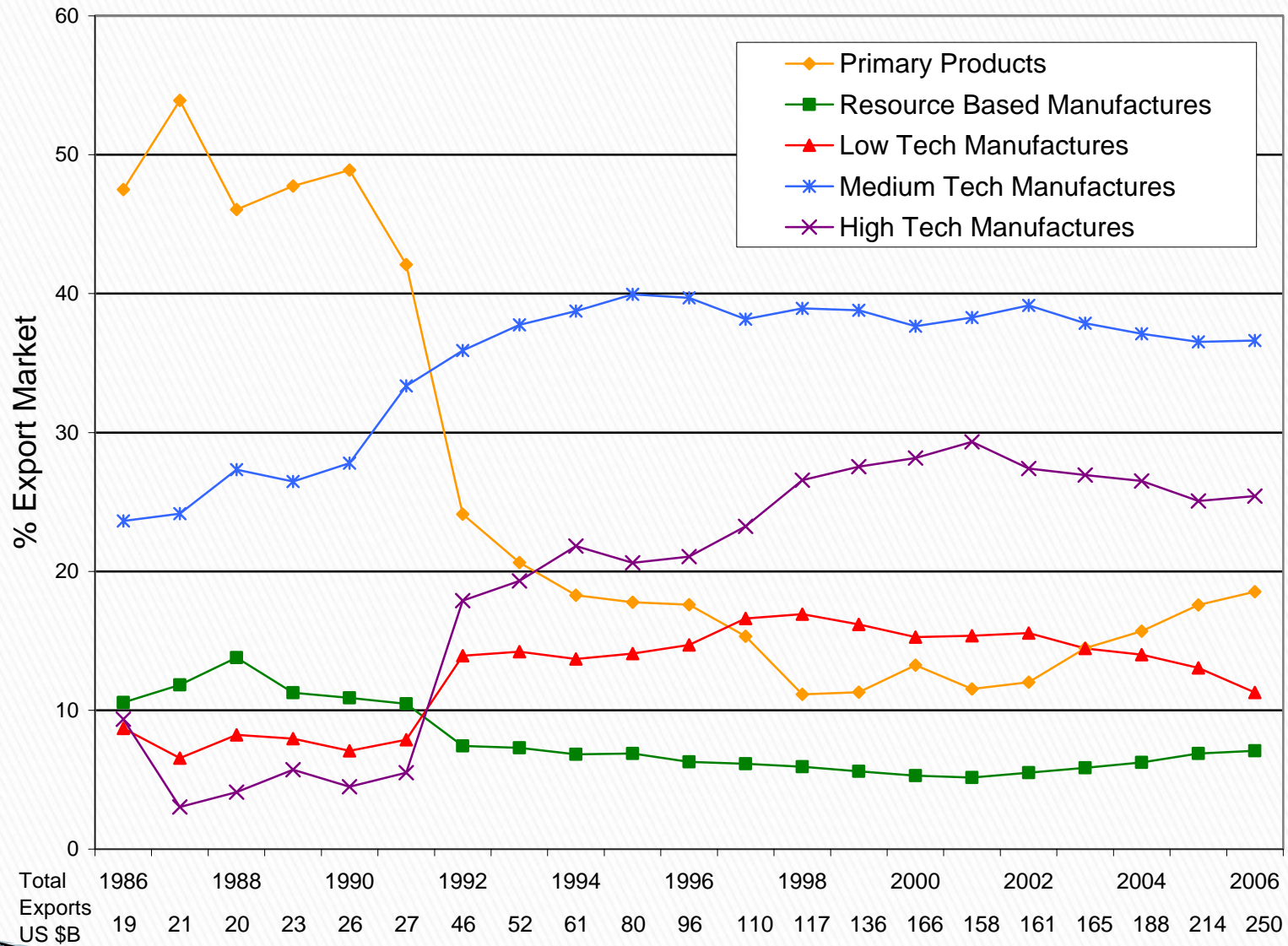


Industrial Upgrading

- ▶ **PRODUCTS:** Moving to higher value niches in GVCs (goods and services)
- ▶ **INDUSTRIES:** Moving from labor-intensive to capital-intensive to technology- and knowledge-intensive industries
- ▶ **ROLES:** Assembly → OEM → OBM → ODM
- ▶ **CAPABILITIES:** Production to Design to Commercialization to Innovation

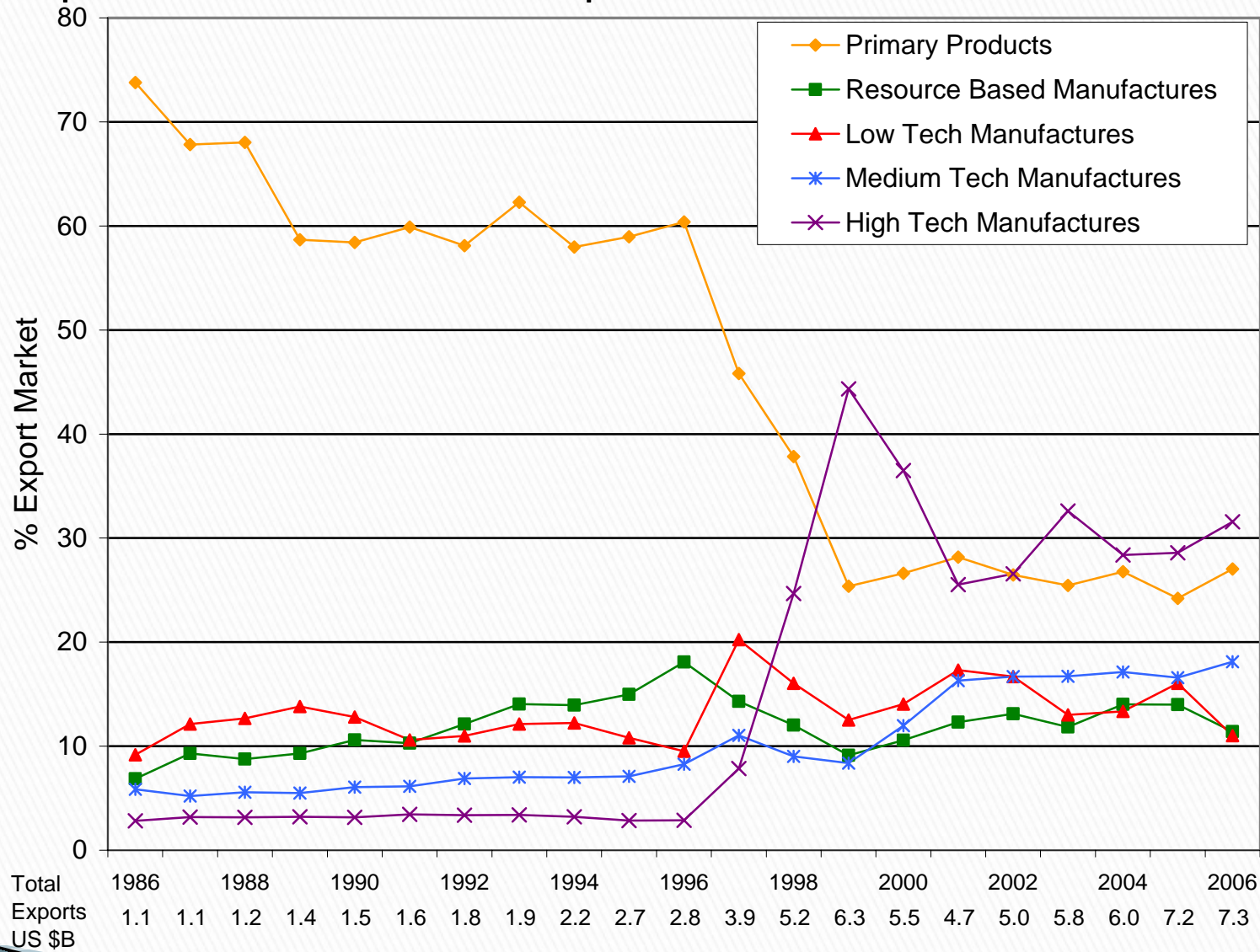
2. Comparing International Upgrading Trajectories

Composition of Mexico's Exports to the World Market, 1986-2006



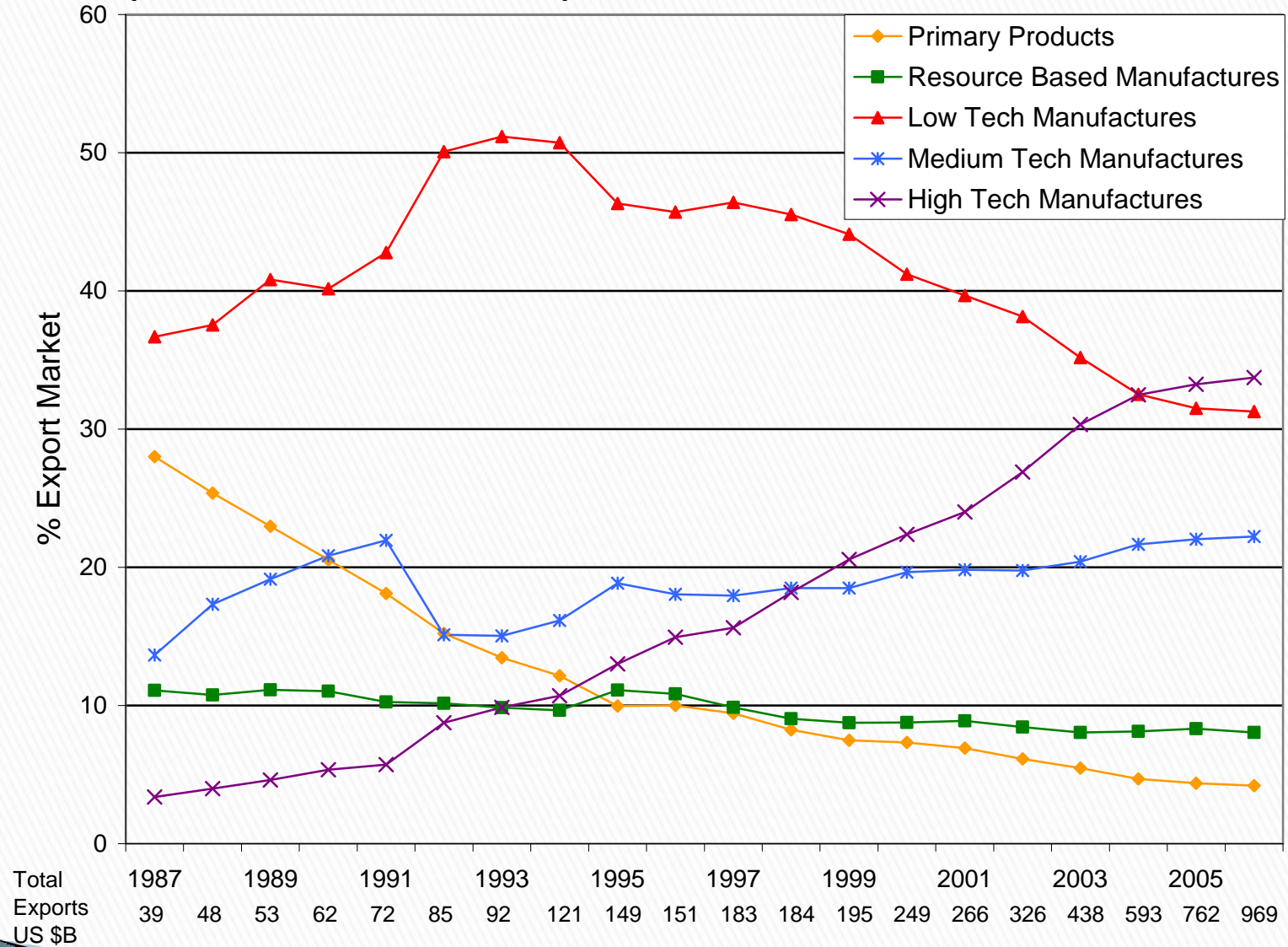
Source: UN Comtrade.

Composition of Costa Rica's Exports to the World Market, 1986-2006



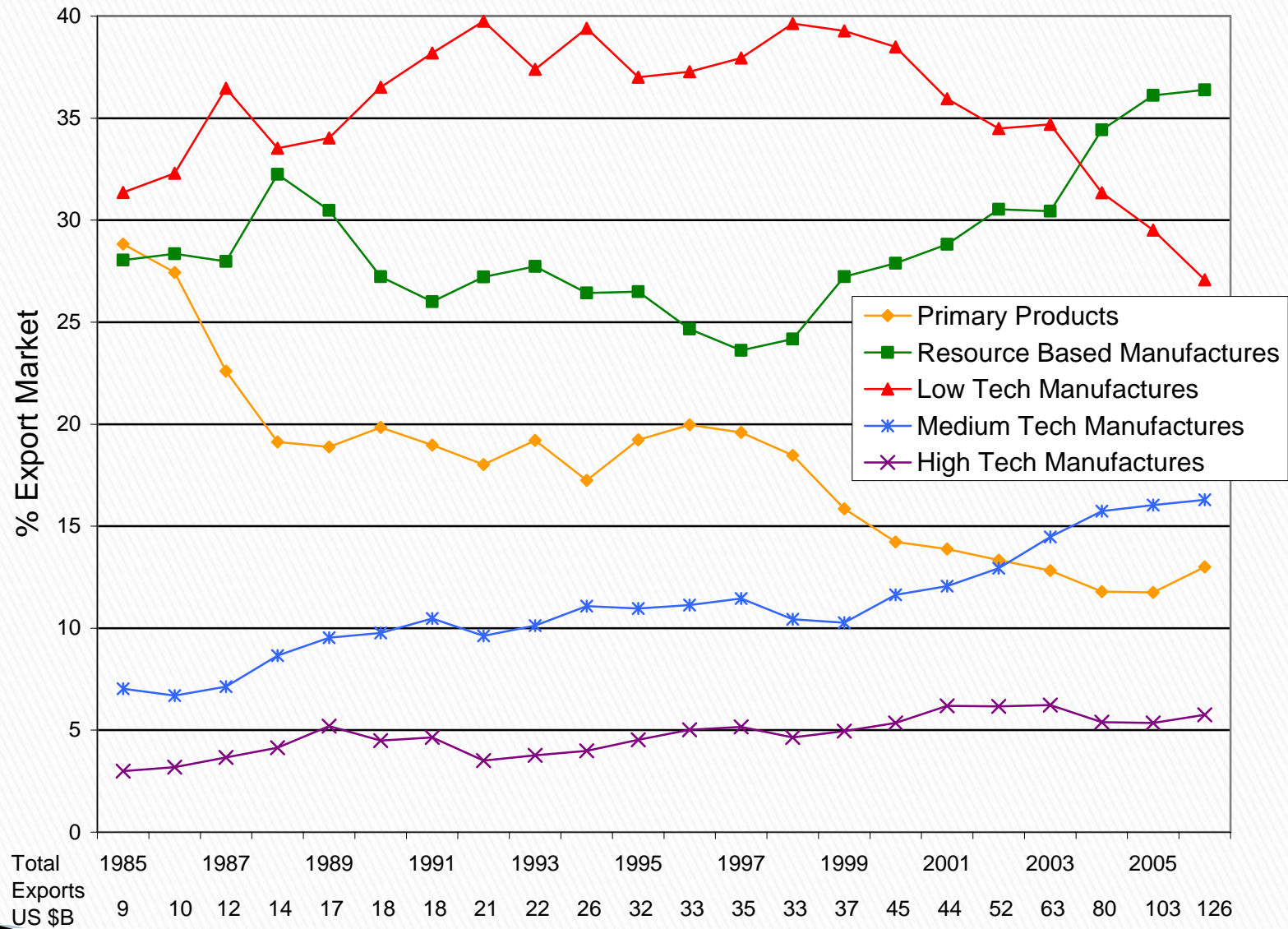
Source: UN Comtrade.

Composition of China's Exports to the World Market, 1987-2006



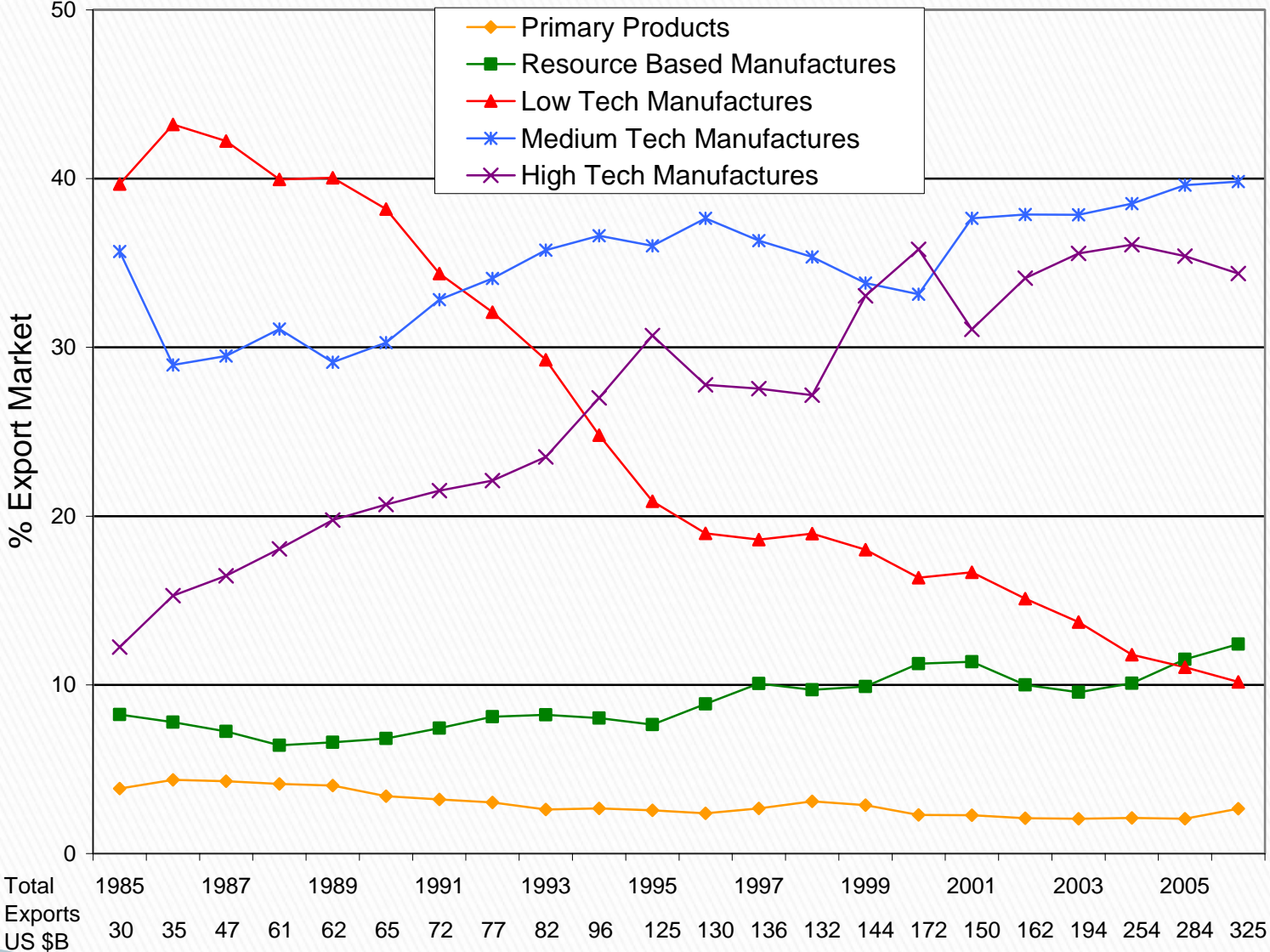
Source: UN Comtrade.

Composition of India's Exports to the World Market, 1985-2006



Source: UN Comtrade.

Composition of South Korea's Exports to the World Market, 1985-2006



Source: UN Comtrade.

3. Case Studies: China Vs Mexico



Mexico vs. China



- Head-to-head competition in U.S. market
- China is world's leading exporter of many manufactures, esp. consumer goods
- China and Mexico are typically among the top three exporters to the U.S. market in many product categories
- China is moving ahead of Mexico with dominant market shares in the United States, especially in 2000-2005 period

Top US Imports in which Mexico and/or China hold 40% or more of the US market, 2007

| Mexico | | | | China | | | |
|---------|---|-----------------------|------------------------------------|---------|--|-----------------------|------------------------------------|
| Product | (SITC categories) | % Market Share in USA | Change in % Market Share 2000-2007 | Product | (SITC categories) | % Market Share in USA | Change in % Market Share 2000-2007 |
| 054 | Vegetables, fresh, chilled, frozen; roots, tubers and other edible vegs | 59.9 | -1.0 | 894 | Baby carriages, toys, games and sporting goods | 83.9 | 19.3 |
| 773 | Equipment for distributing electricity, n.e.s. | 50.8 | -9.9 | 763 | Sound recorders; television image and sound recorders | 76.1 | 53.9 |
| 761 | TV receivers (including video monitors & projectors) | 48.0 | -15.5 | 831 | Trunks, suitcases, vanity cases, binocular, camera cases, handbags, wallets, etc. | 74.2 | 24.3 |
| 782 | Motor vehicles for the transport of goods | 46.6 | 15.0 | 851 | Footwear | 72.8 | 10.9 |
| 772 | Electrical apparatus for switching or protecting electrical circuits | 28.3 | 3.9 | 697 | Household equipment of base metal, n.e.s. | 66.4 | 30.7 |
| 872 | Instruments and appliances for medical, surgical, dental or veterinary purposes | 26.9 | 6.7 | 813 | Lighting fixtures and fittings, n.e.s. | 65.5 | 7.1 |
| 741 | Heating and cooling equipment and parts thereof, n.e.s | 25.8 | 1.5 | 848 | Articles of apparel and clothing accessories; non-textile fabrics | 56.2 | 11.4 |
| 775 | Household type electrical and nonelectrical equip. | 25.6 | 5.9 | 752 | Automatic data processing machines; magnetic or optical readers; | 49.3 | 38.0 |
| | | | | 658 | Made-up articles of textile | 48.8 | 24.7 |
| | | | | 821 | Furniture and parts; bedding, mattresses, supports, cushions | 47.7 | 24.1 |
| | | | | 762 | Radio-broadcast receivers | 45.4 | 10.0 |
| | | | | 759 | Parts and accessories for use office machines | 44.5 | 33.0 |
| | | | | 775 | Household type electrical and nonelectrical equip. | 44.2 | 7.0 |
| | | | | 893 | Articles, n.e.s. of plastics | 42.8 | 11.9 |
| | | | | 842 | Women's or girls' coats, capes, jackets, suits, trousers, dresses, skirts, underwear, etc. of woven textiles | 42.4 | 26.6 |
| | | | | 751 | Office machines | 41.9 | 12.7 |
| | | | | 761 | TV receivers (including video monitors & projectors) | 38.7 | 36.2 |
| | | | | 764 | Telecommunications equipment, n.e.s. and telecommunications accessories | 37.3 | 27.0 |
| | | | | 771 | Electric power machinery | 32.6 | 10.8 |
| | | | | 899 | Miscellaneous manufactured articles | 31.8 | -11.0 |
| | | | | 699 | Manufactures of base metal, n.e.s. | 31.2 | 17.6 |
| | | | | 845 | Articles of apparel, of textile fabrics, whether or not knitted or crocheted | 31.2 | 20.4 |
| | | | | 778 | Electrical machinery and apparatus | 26.6 | 14.7 |
| | | | | 844 | Women's or Girls' Coats, Capes, Jackets, Suits, Trousers, Dresses, Underwear, etc. (except swimwear and coated etc. apparel), knitted or crocheted | 29.3 | 25.3 |
| | | | | 625 | Rubber Tires, Interchangeable Tire Treads, Tire Flaps and Inner Tubes | 26.0 | 19.4 |

Source: United States International Trade Commission and US Department of Commerce. (<http://dataweb.usitc.gov>) downloaded Feb. '08

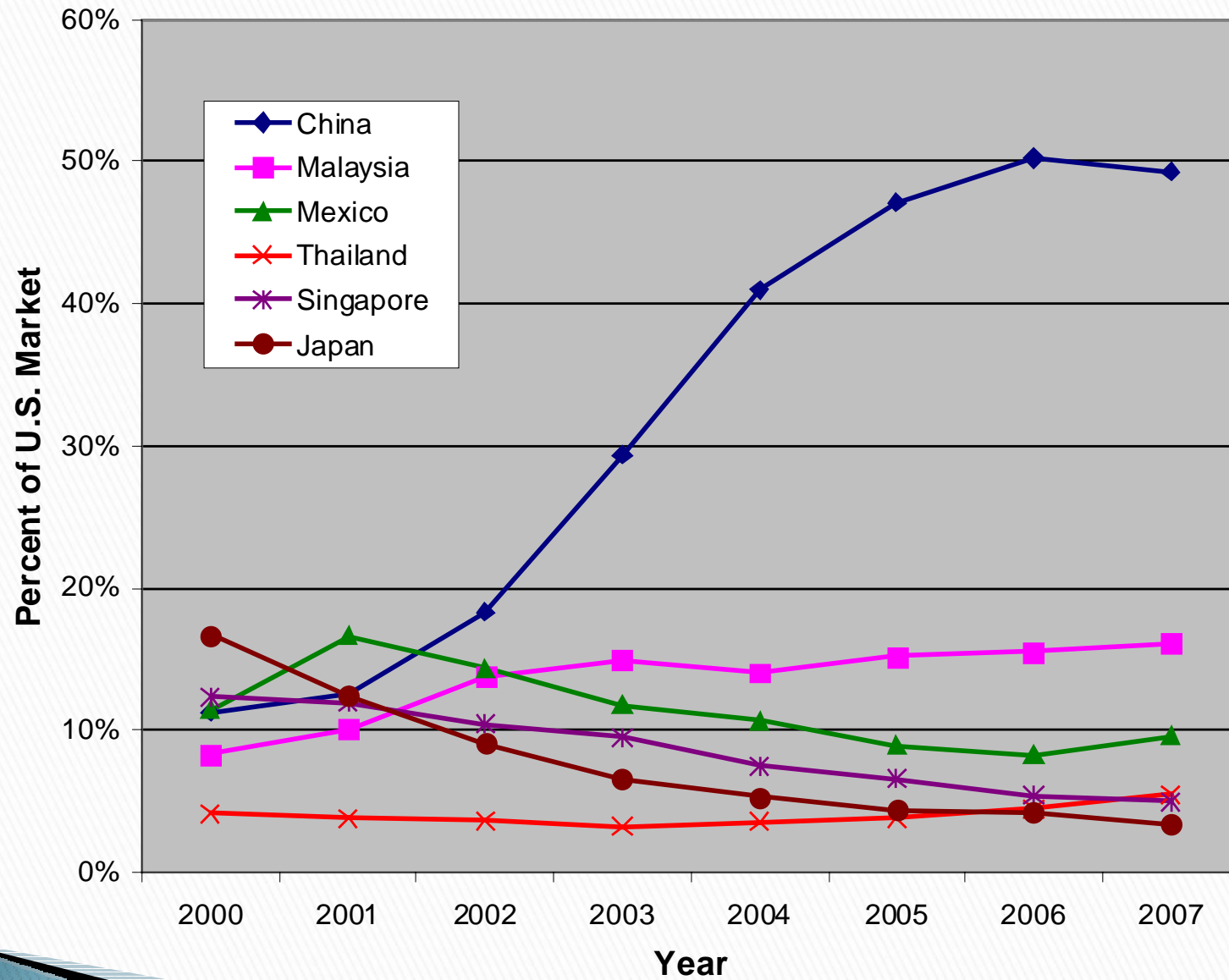
¹Criteria: Over 2 Billion in US Imports from China or Mexico in 2007 at the 3 digit SITC level

Mexico's and China's Competing Exports to the United States, 2000-2007

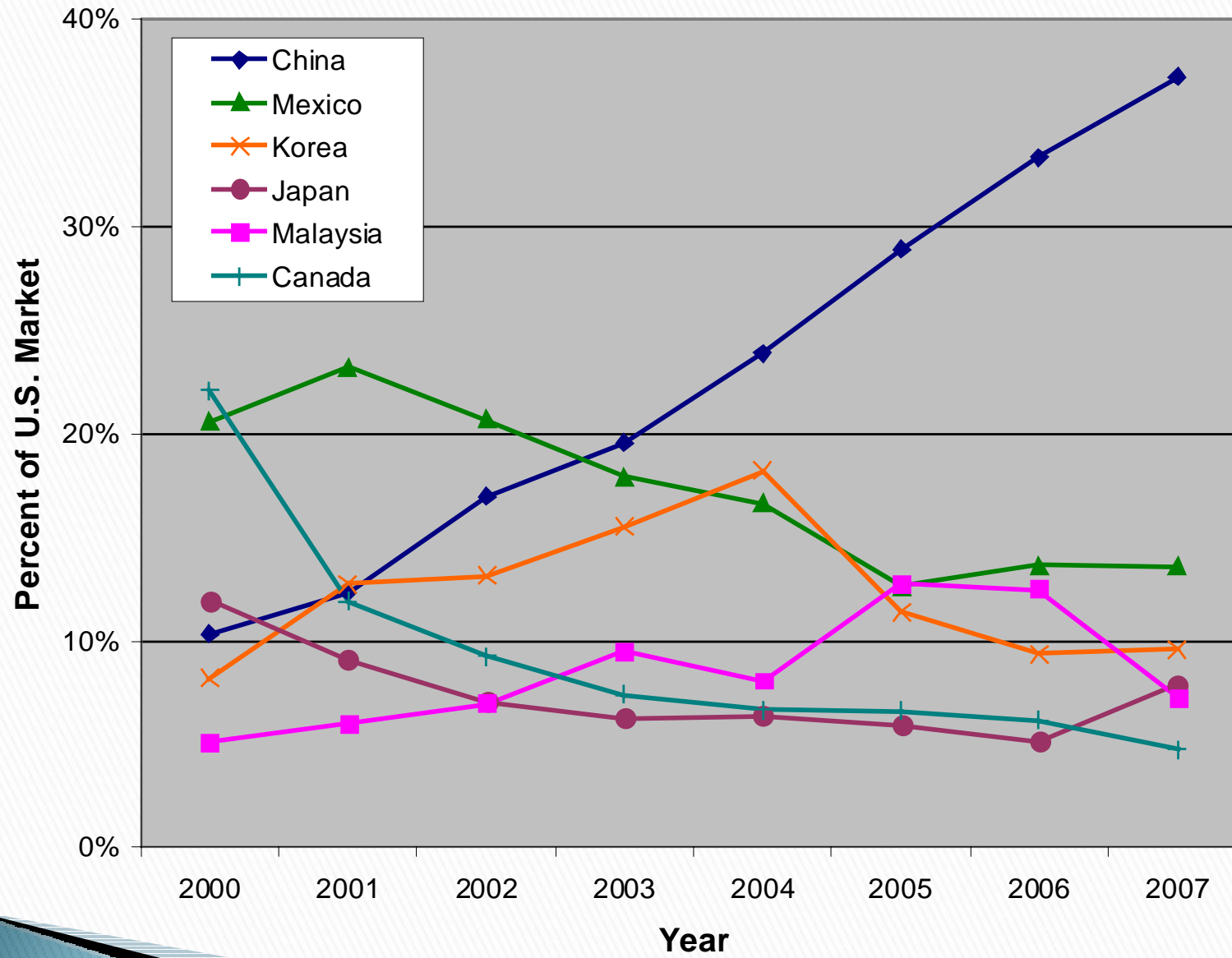
| SITC category | Product | | 2000 | | 2007 | | Change in Market Share 2000-2007 |
|---------------|--|----------|------------------|--------------------|------------------|--------------------|----------------------------------|
| | | | Value (billions) | Share of US market | Value (billions) | Share of US market | |
| 752 | Automatic Data Processing Machines and Units | Mexico | 6.4 | 11.5 | 5.6 | 9.6 | -1.9 |
| | | China | 6.3 | 11.3 | 28.6 | 49.3 | |
| | | US Total | 55.9 | | 57.9 | | |
| 764 | Telecommunications Equipments and Parts | Mexico | 9.1 | 20.6 | 10.8 | 13.6 | -7.0 |
| | | China | 4.6 | 10.3 | 29.6 | 37.3 | |
| | | US Total | 44.3 | | 79.5 | | |
| 778 | Electrical Machinery and Apparatus | Mexico | 3.1 | 18.3 | 5.0 | 21.8 | 3.5 |
| | | China | 2.0 | 11.9 | 6.1 | 26.6 | |
| | | US Total | 17.1 | | 23.1 | | |
| 784 | Auto Parts and Accessories | Mexico | 4.6 | 16.3 | 10.2 | 22.2 | 5.8 |
| | | China | 0.4 | 1.5 | 3.6 | 7.8 | |
| | | US Total | 28.4 | | 46.2 | | |
| 821 | Furniture | Mexico | 3.2 | 16.9 | 4.6 | 13.6 | -3.3 |
| | | China | 4.5 | 23.6 | 16.2 | 47.7 | |
| | | US Total | 18.9 | | 33.9 | | |
| 84 | Articles of Apparel and Clothing | Mexico | 8.7 | 13.6 | 4.7 | 5.8 | -7.8 |
| | | China | 8.5 | 13.2 | 27.1 | 33.4 | |
| | | US Total | 64.3 | | 81.2 | | |

Source: US Department of Commerce (<http://dataweb.usitc.gov>), Downloaded Feb 21, 2008

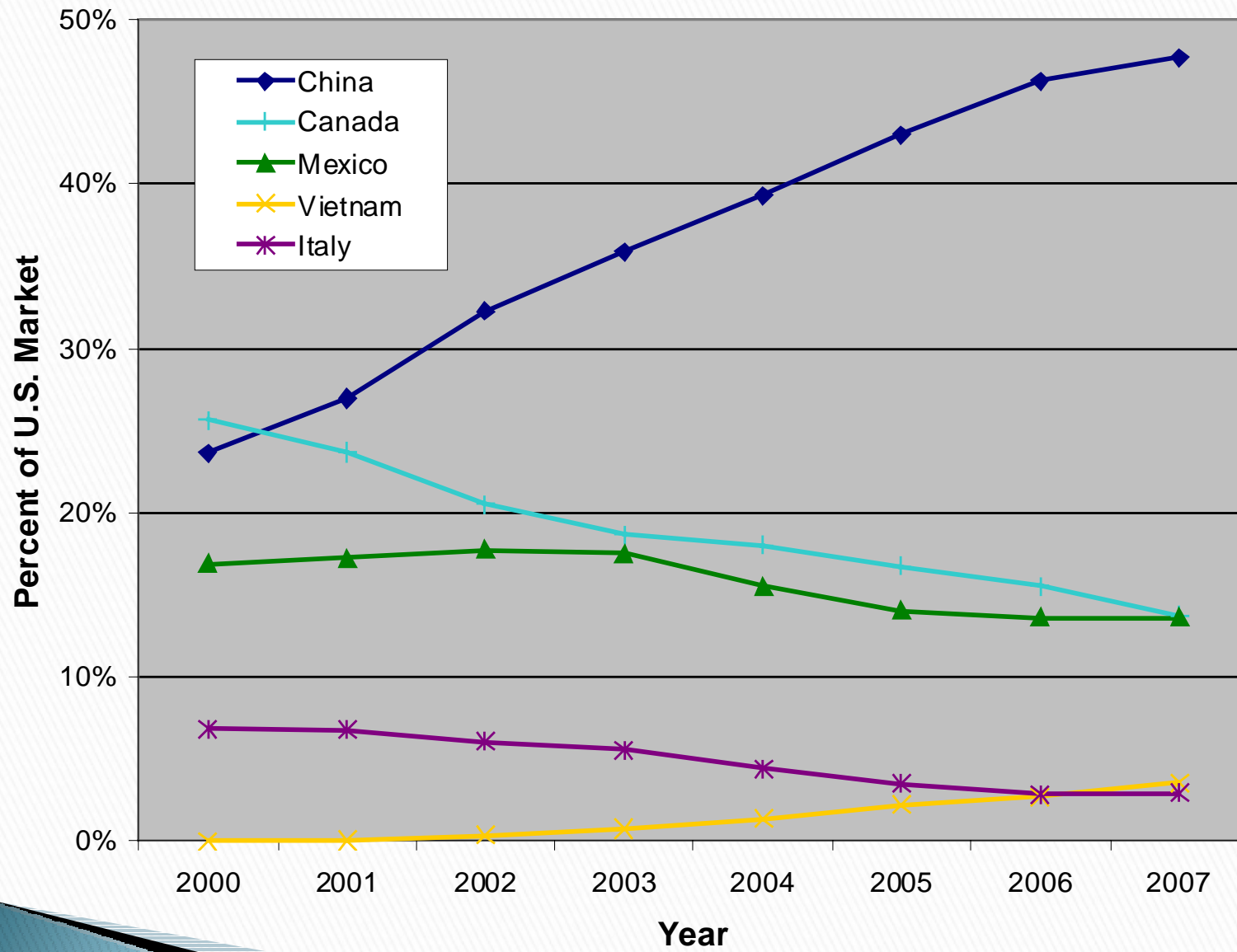
Main Competitors in the U.S. Market for Automatic Data Processing Machines and Units (SITC 752)



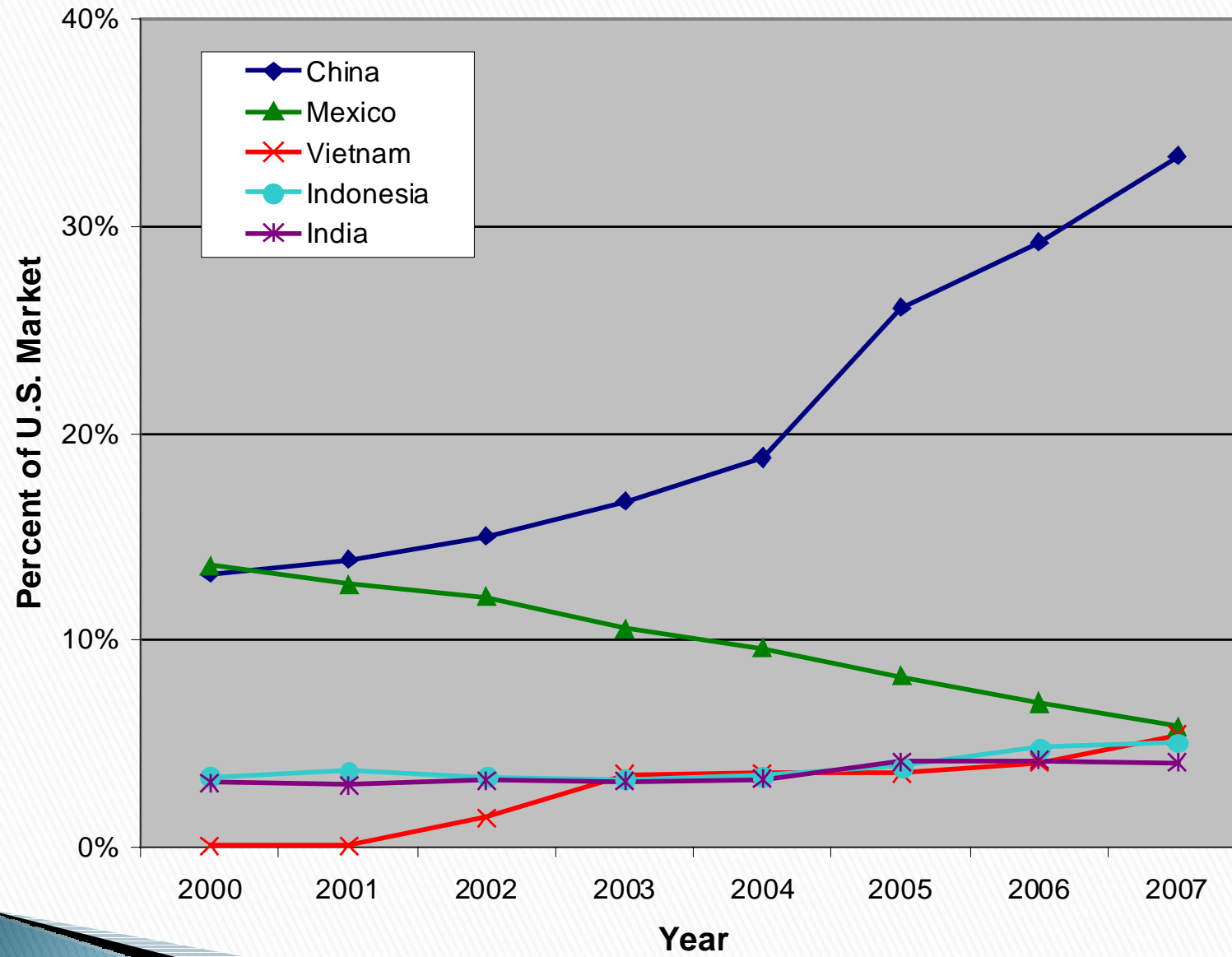
Main Competitors in the U.S. Market for Telecommunication Equipment and Parts (SITC 764)



Main Competitors in the U.S. Market for Furniture and Parts (SITC 821)



Main Competitors in the U.S. Market for Articles of Apparel and Clothing (SITC 84)



Why is China gaining U.S. market share over Mexico?

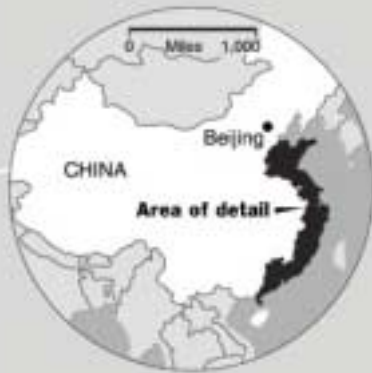
- China is a lower-cost producer overall (labor costs lower, but not transport & tariffs)
- China has huge scale economies
- China has a coherent and multidimensional upgrading strategy – diversify and add high value activities
- China is using direct foreign investment to promote “fast learning” in new industries
- China uses access to its domestic market to attract TNCs and promote knowledge spillovers



China's Supply Chain Cities in Apparel

Made in China, Shipped Worldwide

The factory towns on the coast of China manufacture clothing to keep America's closets full, making everything to wear from head to toe.



Factory orders, 2003

PRODUCTION

TOTAL SALES

U.S. EXPORTS

MEN'S WEAR
Zhucheng

100 MILLION
PIECES

\$600
MILLION

\$100
MILLION

CASUAL WEAR
Haiyu, Changshu

160 MILLION
PIECES

\$260
MILLION

\$ 58
MILLION

DOWN-FILLED PRODUCTS
Xintang, Hangzhou, Xiaoshan

26 MILLION
PIECES

\$470
MILLION

\$290
MILLION

TIES
Shengzhou

300 MILLION
PIECES

\$1.21
BILLION

\$384
MILLION

SOCKS
Datang, Zhuji

9 billion
PAIRS

\$1.57
BILLION

\$240
MILLION

UNDERWEAR
Jinjiang, Shenhu

969 million
PIECES

\$360
MILLION

\$290
MILLION

**WEDDING DRESSES,
EVENING GOWNS**
Chaozhou

510 million
PIECES

\$950
MILLION*

\$640
MILLION†

JEANS
Xintang, Zengcheng

225 million
PIECES

\$1.04
BILLION

\$480
MILLION

*Includes all textiles made in the city.
†Wedding dress and evening gown exports only.

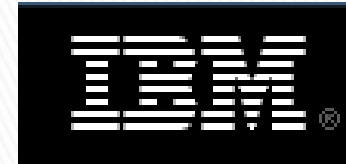
Sources: China National Textile Council; Shenhu Underwear Association; Datang Town Government

The New York Times

Source: David Barboza, "In roaring China, sweaters are west of socks city," *New York Times*, Dec. 24, 2004.

MNC R&D Centers in China How are engineers being used?

- What kinds of work are Chinese, Indian, and American engineers actually doing?
 - Answer: Not just product adaptation, but cutting-edge research & commercialization
- China: More than 1,000 MNC R&D Centers
 - GE's China Technology Center: Advanced research in energy storage, environmental management
 - Microsoft Research Asia: Cutting-edge graphics & multimedia research



**Rockwell
Automation**

Microsoft



ORACLE

AMD



4. Textiles & Apparel and IT in India

Tiruppur Knitwear Cluster

- ❖ Dramatic increase in sales & employment
- ❖ 85% of India's cotton knitwear exports, ~ 4% of total exports
- ❖ Transformed from basic knit garments for lower end of domestic market to a diversified production range, especially fashion basics/casual wear for exports
- ❖ 5,000 firms (few lead firms directly linked to global buyers)
- ❖ 15 active industry associations, Knit Fair Complex, logistics, fashion institute in collaboration with NIFT

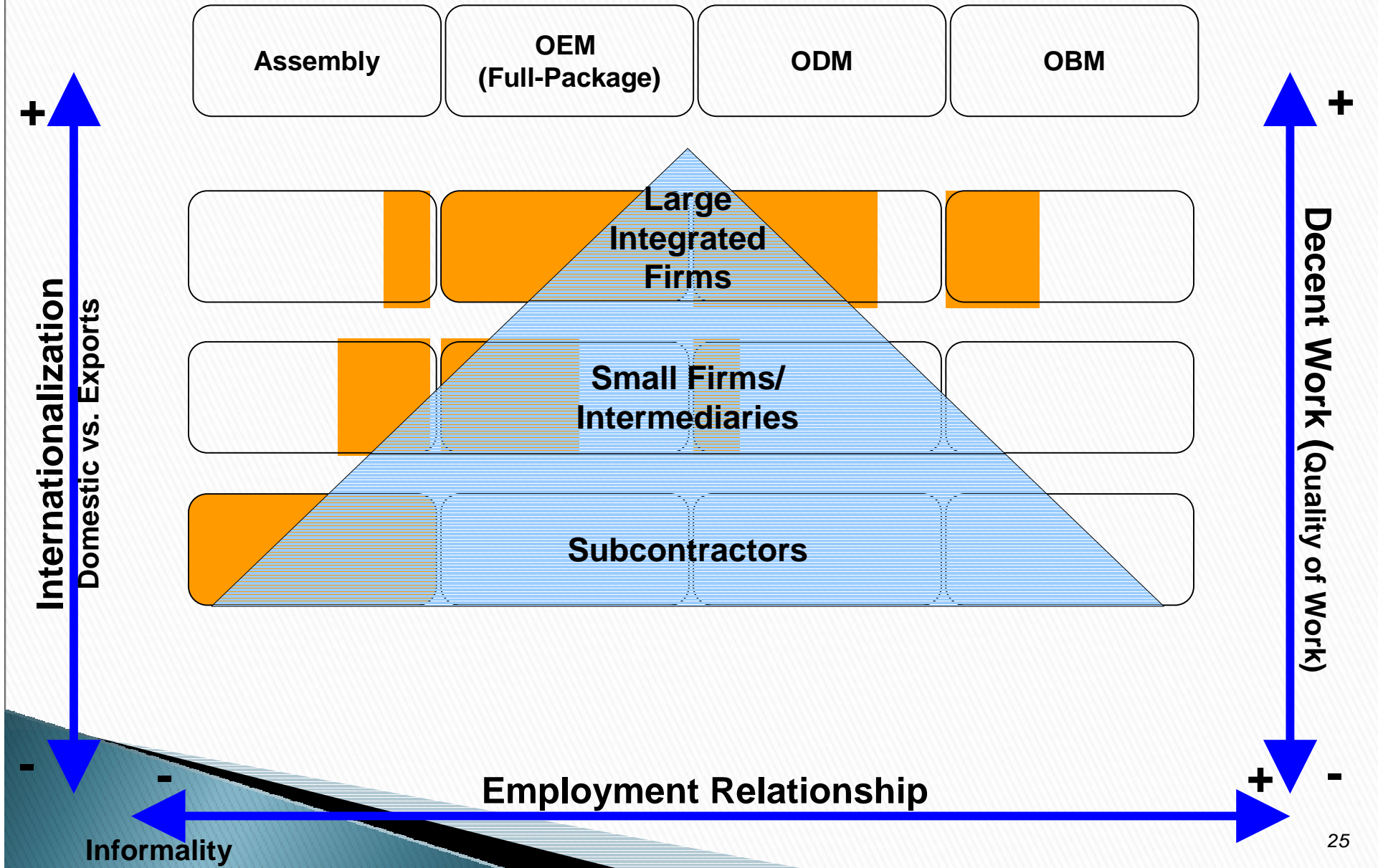
Labor Market Conditions*:

- 96% of workers are casual employees
- Mostly migrant women from backward castes
- Vast majority of women are 'flexible' seasonal workers
- 92% of women surveyed were paid on piece-rate (though time-rate is increasing)



* Neetha, N (2002), 'Flexible Production, Feminisation and Disorganisation: Evidence from the Tiruppur Knitwear Industry', Economic and Political Weekly, May 25th.

Textiles & Apparel Value Chain Upgrading Categories



India: The Offshoring of IT Services

- ❑ India employs about 650,000 professionals in IT services, and this figure is expected to more than triple in the next five years
- ❑ General Electric's "70-70-70" outsourcing rule of thumb: about one-third of GE's IT work will be done in India
- ❑ A strong nucleus of domestic IT service providers has emerged:
 - ❑ Tata Consultancy Services – 23,400 employees and over \$1 billion in revenues (as of March 2003)
 - ❑ Wipro Technologies – 19,800 employees and \$690 million in revenues
 - ❑ Infosys Technologies – 15,500 workers, over \$750 million in revenues
 - ❑ Satyam Computer Services and HCL Technologies – close to 10,000 employees each and \$460 million and over \$330 million in revenues
- ❑ Indian programmers make only 1/9 of their US counterparts, but in the domestic setting the Indian programmers are earning more than 16 times the min wage, while the average US programmer earns only twice the min wage

Bangalore Software Cluster: 'India's Silicon City'

- ❑ Tremendous growth in software exports since the late 1980s
- ❑ Largest centre for software exports in India - 40% of India's total exports
- ❑ 140 TNC development centers, 750 large and small domestic IT firms
- ❑ Movement from on-site to offshore projects, increasing customized services
- ❑ A degree of upgrading from labor-intensive (*coding, testing and maintenance*) to skill-intensive & high value-adding (*design and requirement analyses*)

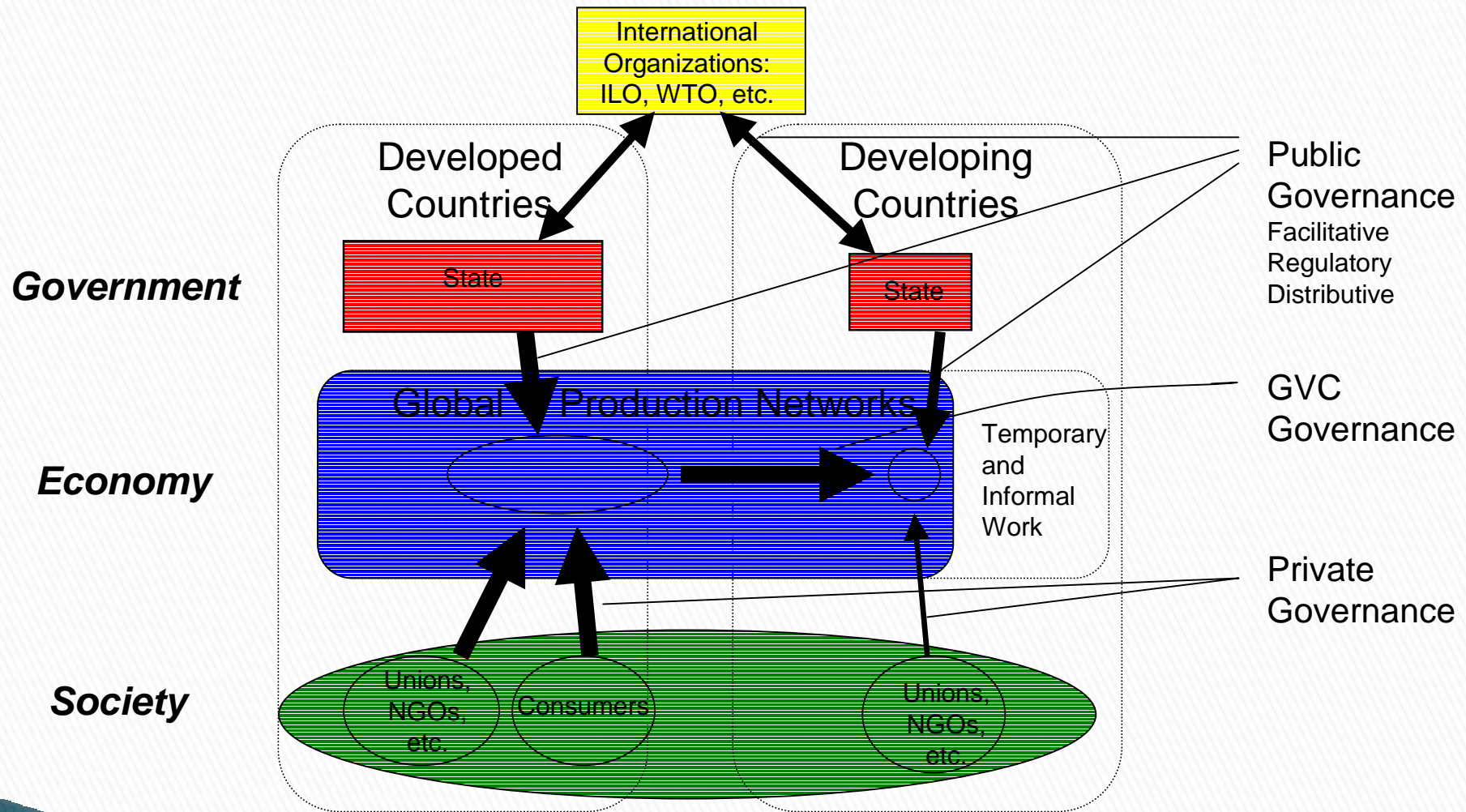


The Next Wave of Globalization in India

- India as a center of research, design and innovation
- Pharmaceutical
 - Drug discovery, specialty pharmaceuticals, biologics, high value, bulk manufacturing, advanced intermediate manufacturing
- Aerospace
 - In-flight entertainment, airline seat design, collision control systems, navigation control systems, fuel inverting controls, first-class cabin design
- Consumer Appliances/Semiconductors, etc.
 - Design of next generation washing machines, dryers, refrigerators, digital TV, cell phones – base stations, automobiles, tractors, locomotive motors

*5. Global Production Networks,
Governance, and Upgrading Revisited*

Global Production, Private Governance and Public Governance

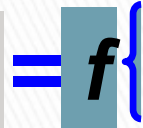


Source: Adapted from Gary Gereffi and Frederick Mayer, "Globalization and the demand for governance," Lecture 3 in G. Gereffi, *The New Offshoring of Jobs and Global Development*, ILO, 2006.

A Model of Industrial and Social Upgrading: Integrating Global Production Networks, Private Governance, and Public Governance

Scale and Quality of Work

Wages
Job stability
Rights at work
Respect for labor standards
Voice and representation
Workplace conditions
Social protection



Industrial Organization,

GPN geography
GPN governance (hierarchy, captive, relational, modular, and market)
Workforce Composition:
Gender, etc.
Typology of Work

- Labor-intensive, informal, casual, migrant, or contract
- Assembly for export
- “Full package”
- Original design
- Knowledge-intensive jobs

Private Governance,

Codes of Conduct

- Extent of code adoption
- Strength of codes

NGO strength
Trade union strength
Employers’ organizations
Representation among non-organized sectors

Public Governance

National

- Industrial and other “facilitative” policies
- Regulatory regime (labor standards, etc.)
- Distributive policies

International
ILO Conventions
Social Compact

Options for Industrial and Social Upgrading

□ Industrial Upgrading

- Premise: Better location in value chain → Better quality of work
- Policy Instruments (Facilitative)
 - Targeted Industrial Policy
 - Investment incentives
 - Infrastructure
 - Education
 - etc.

□ Social Upgrading

- Premise: Given type of job and location in value chain, stronger governance → Better quality of work
- Policy Instruments
 - Regulatory (ILO conventions, national laws, enforcement capacity)
 - Distributive (Social insurance, etc.)
- Private Governance

***Thank you
for your attention!***

Gary Gereffi, Director, CGGC
Duke University
Center on Globalization, Governance &
Competitiveness
ggere@soc.duke.edu