

Joining Global Production Networks: China's Processing Trade and High-Tech Exports

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The Disadvantages of Developing Countries in the Global Competition

- ▶ No globally recognized brands;
- ▶ No advanced Technologies
- ▶ No international market distribution networks;
- ▶ Lack of financial resources and skills for international marketing;.

Participating in Global Production Networks: An effective strategy to utilize international Market

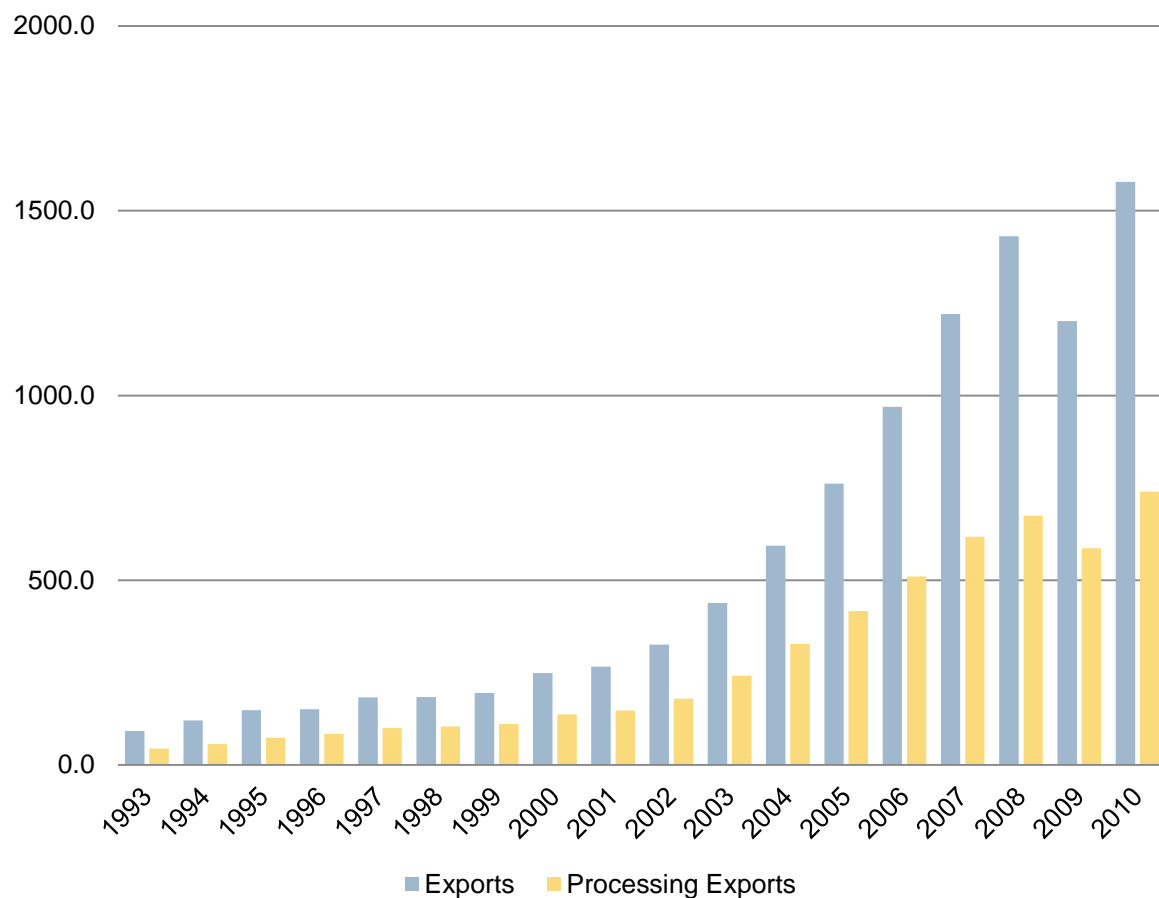
- ▶ Identifying national comparative advantages
- ▶ Identifying the right position in the global production fragmentation
- ▶ China has the comparative advantage in labor endowment
- ▶ Assembly in the global production network is labor

Processing Trade in China

- ▶ ***Processing Trade***: importing parts and components for producing products for overseas markets and exporting products assembled with imported intermediates;
- ▶ ***Processing Trade*** accounted for 40% of China's trade and 100% of China's trade surplus;
- ▶ ***Production networks*** play a critical role in processing trade.

China's Exports and Processing Exports

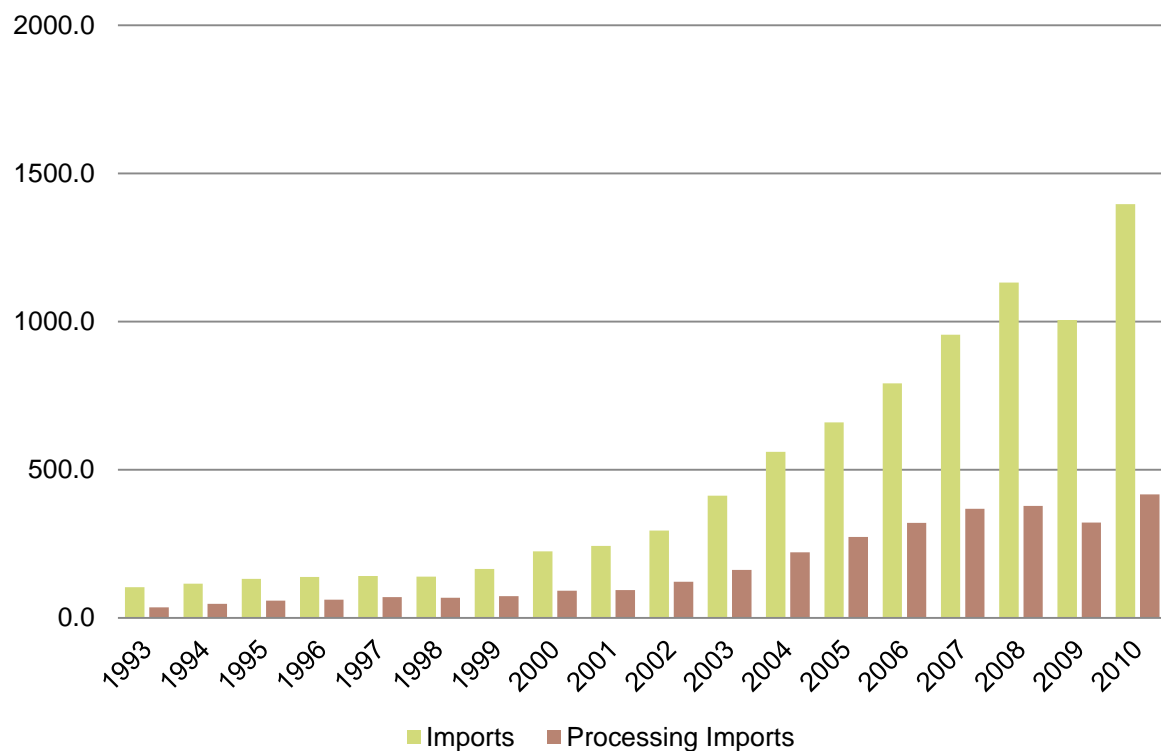
China's Total Exports and Processing Exports (Billion Dollar)



In 1993, Processing exports amounted \$44.2 billion, about 48% of China's total exports;

by 2010 the number surged to \$740 billion, equivalent to 47% of China's total exports.

China's Imports and Processing Imports



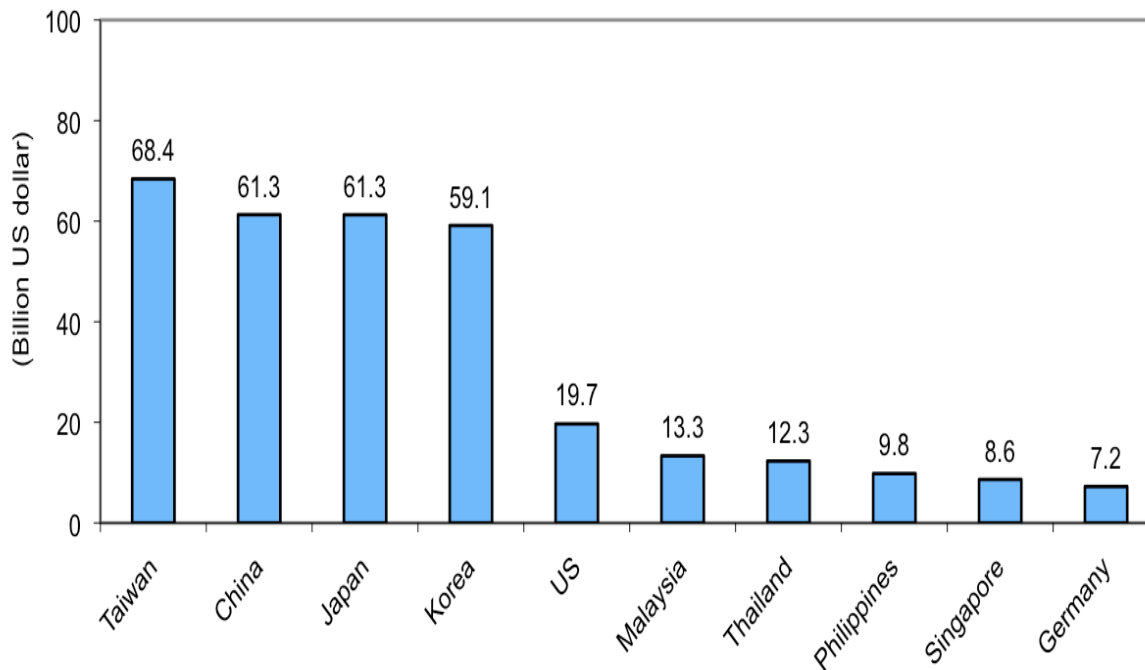
Processing imports are duty-free.

In 1993, Processing imports amounted \$36.4 billion, about 35% of China's total imports;

by 2010 the number surged to \$417 billion, equivalent to 30% of China's total imports.

Top Ten Sources of China's Processing Imports

Top Ten Sources of China's Processing Imports (2008)

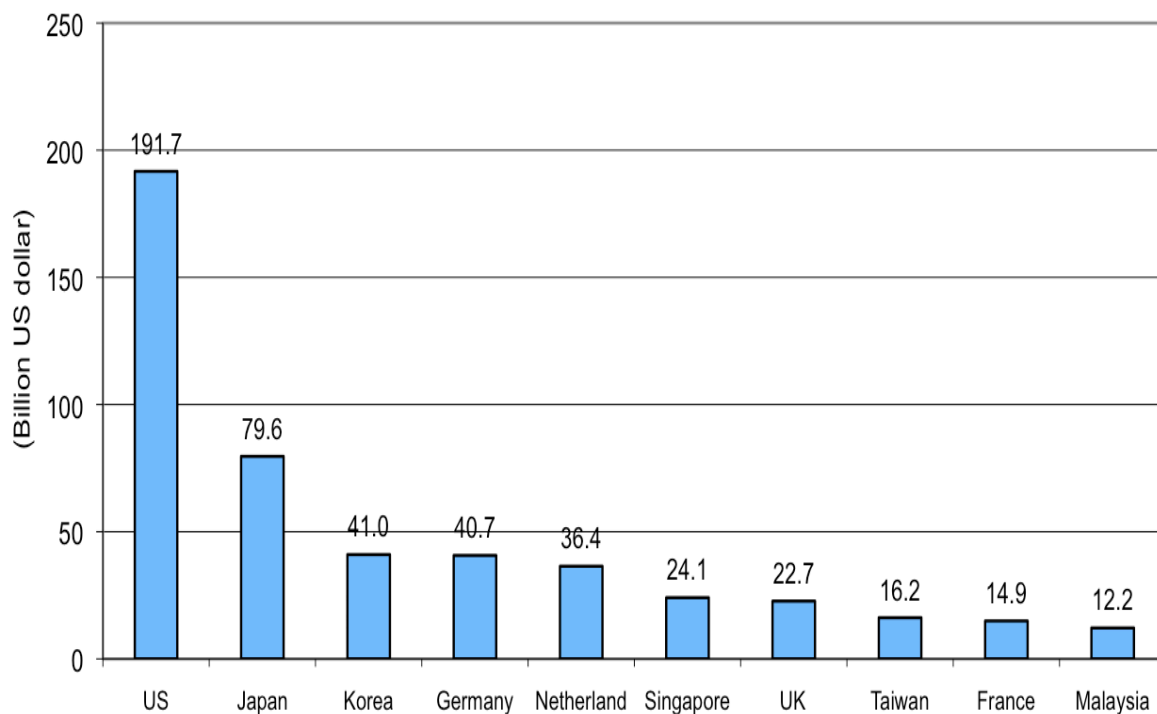


The top ten sources accounted for 88% of China's processing imports;

The [East Asian](#) economies among the top ten accounted for [77%](#).

The markets of China's processing exports

Top Ten Destination of China's Processing Exports (2008)



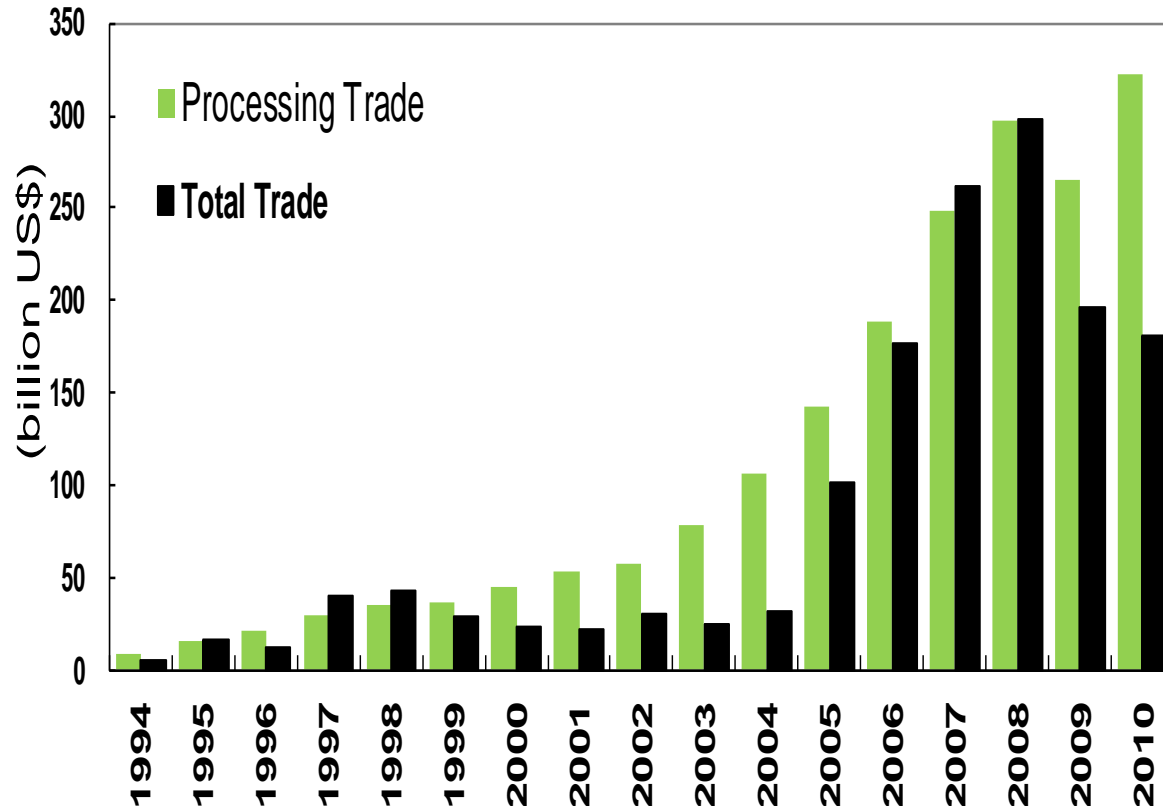
The top ten destination markets accounted for 71%; the US 28% and the five East Asian economies among the top ten **26%**, far less than the corresponding processing export share **77%**

The Triangle Trade: East Asia-China-the US and EU

- ▶ The processing trade data illustrate a clear triangle trade pattern:
 - East Asia (parts and components) → China (Assembly);
 - China (assembled products) → the US and EU.

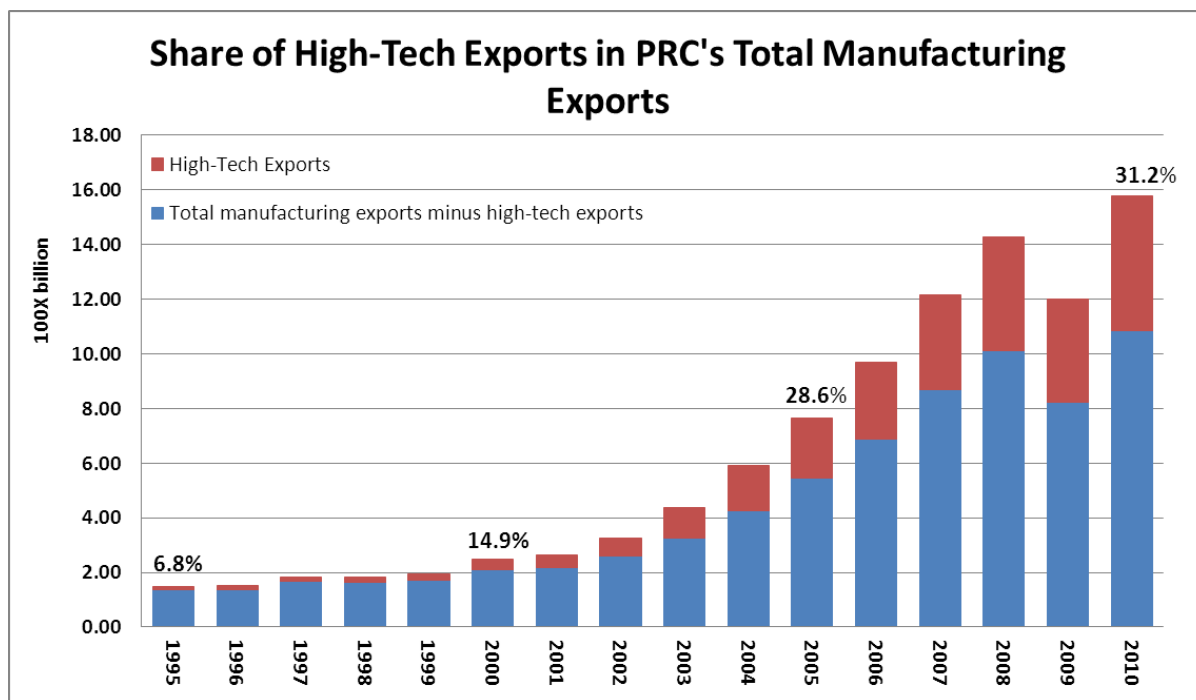
The triangle trade pattern outlines the roadmap of the China-centered East Asian Production networks.

Processing trade and China's trade balances



Processing trade contributed 100% of China's trade surplus.

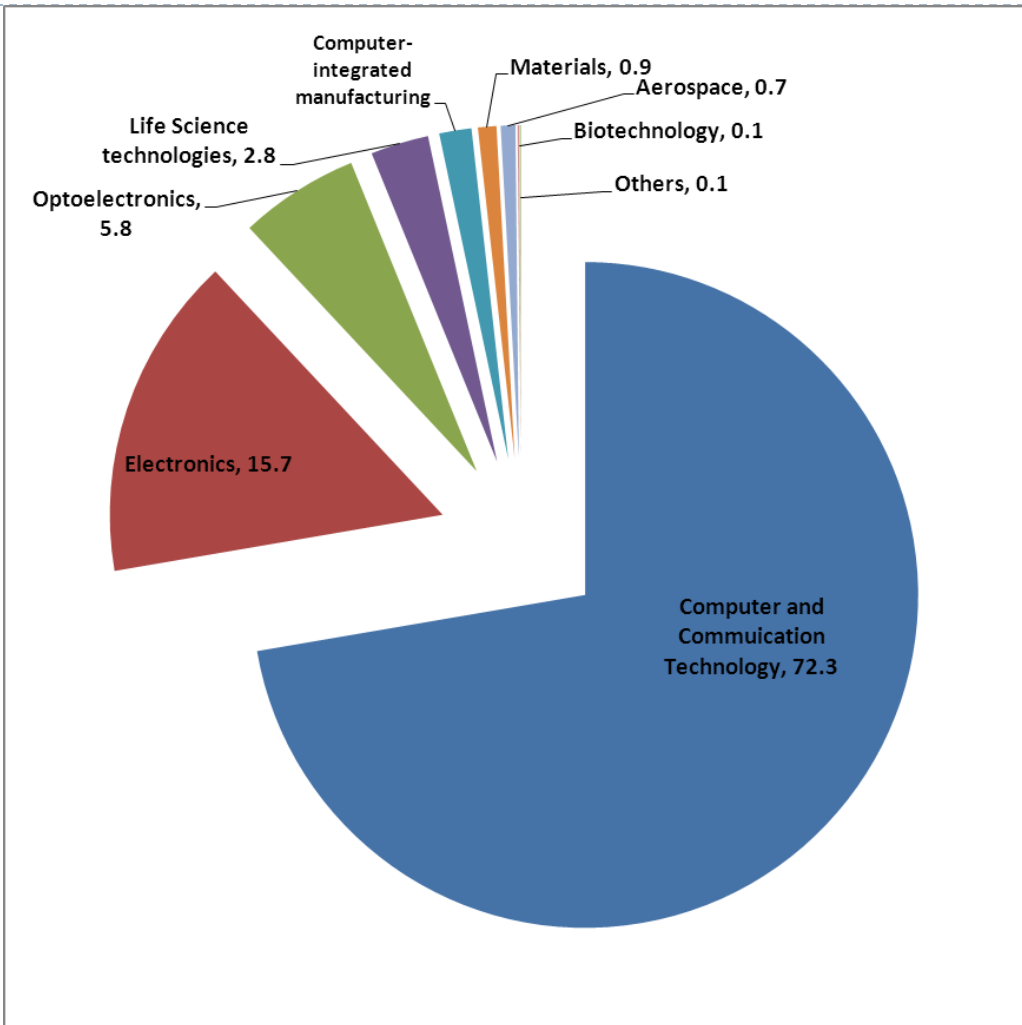
Trends in High-Tech Exports



Source: Xing, Y (2013) "China's high-tech exports: myth and reality"

- According to an OECD report, in **2006**, PRC emerged as the **largest exporter** of high-tech goods.
- In **1995**, high-tech exports were only **\$10 billion**, making up **6.8%** of manufacturing exports.
- By **2010**, the figure reached **\$492 billion**, accounting for over **31.2%** of manufacturing exports.

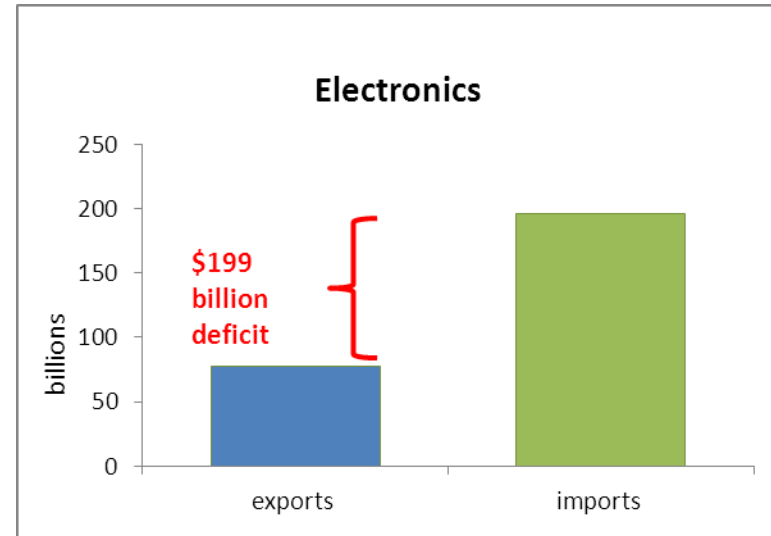
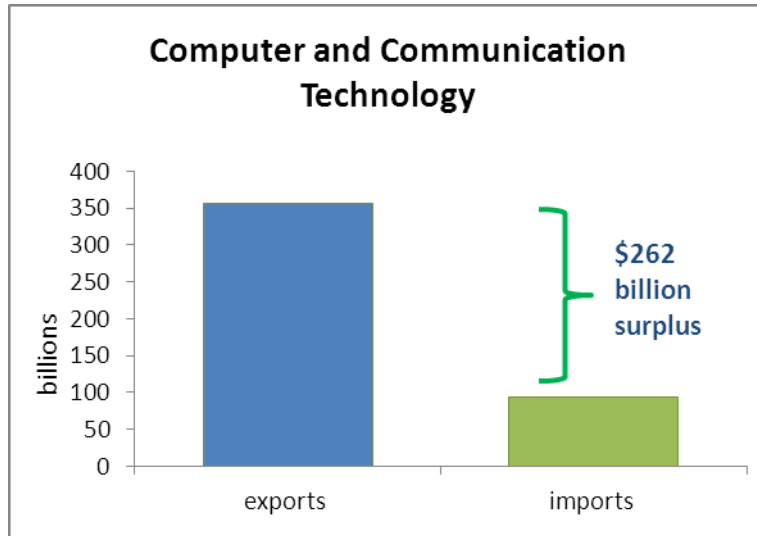
Structure of High-Tech Exports



- PRC's official statistics divide high-tech exports into **nine categories**.
- In 2010, **Computer & Communication Technology AND Electronics** made up 88% of high-tech exports.

Source: Xing (2013)

Structure of High-Tech Exports

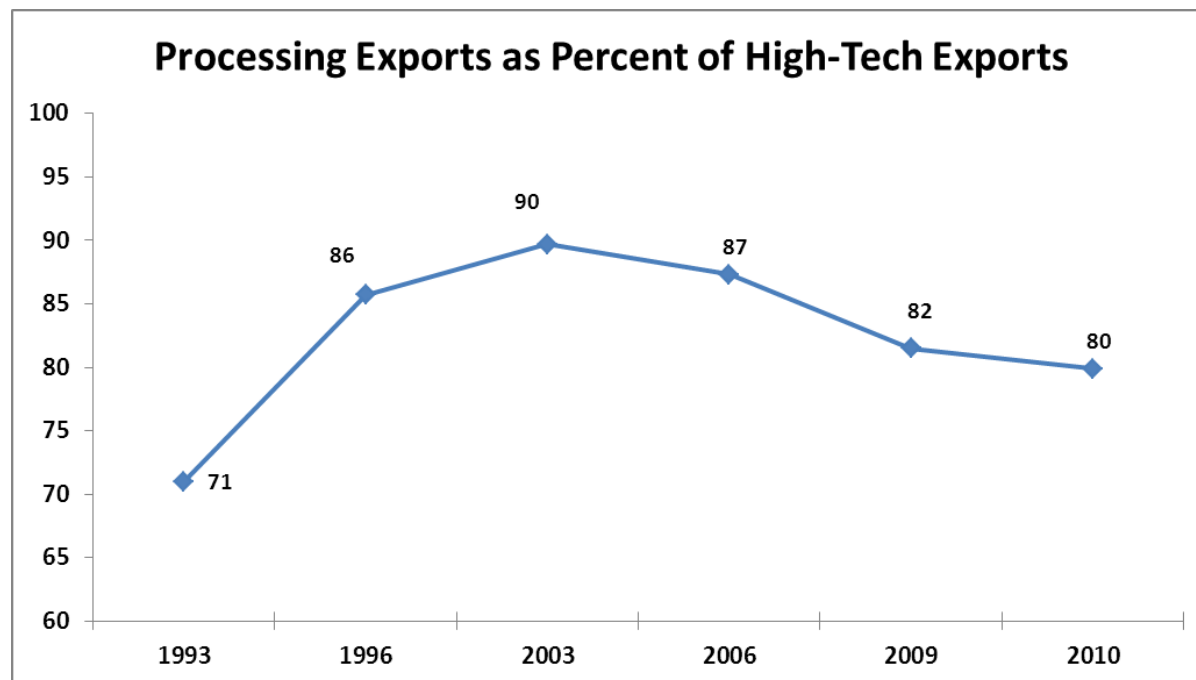


Source: China's Ministry of Science and Technology

- Surplus and Deficit in the categories above are consistent to the fact that many intermediate parts used to manufacture computer and communication technology products are categorized as electronics.

- PRC is positioned at the **low-valued added, final stage** of the ICT supply chains.

Processing Trade and High-Tech Exports



Source: Xing (2013)

- Processing exports accounted for **80%** of PRC's high-tech exports in 2010.

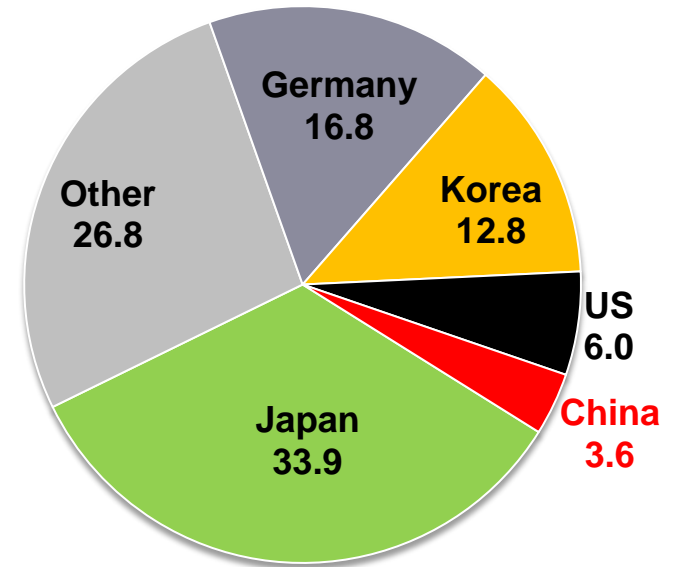
- **Processing exports** consists of processing and assembling imported parts and components into finished products, and re-exporting them to the global market.

Case Study I: iPhone

Table 1 . Apple iPhone 3G's Major Components and Cost Drivers

Manufacturer	Component	Cost (USD)
Toshiba (Japan)	Flash Memory	\$24.00
	Display Module	\$19.25
	Touch Screen	\$16.00
Samsung (Korea)	Application Processor	\$14.46
	SDRAM-Mobile DDR	\$8.50
Infineon (Germany)	Baseband	\$13.00
	Camera Module	\$9.55
	RF Transceiver	\$2.80
	GPS Receiver	\$2.25
	Power IC RF Function	\$1.25
Broadcom (USA)	Bluetooth/FM/WLAN	\$5.95
Numonyx (USA)	Memory MCP	\$3.65
Murata (Japan)	FEM	\$1.35
Dialog Semiconductor (Germany)	Power IC Application Processor Function	\$1.30
Cirrus Logic (USA)	Audio Codec	\$1.15
Rest of Bill of Materials		\$48.00
Total Bill of Materials		\$172.46
Manufacturing costs		\$6.50
Grand Total		\$178.96

iPhone Manufacturing Cost Distribution by Country (%)

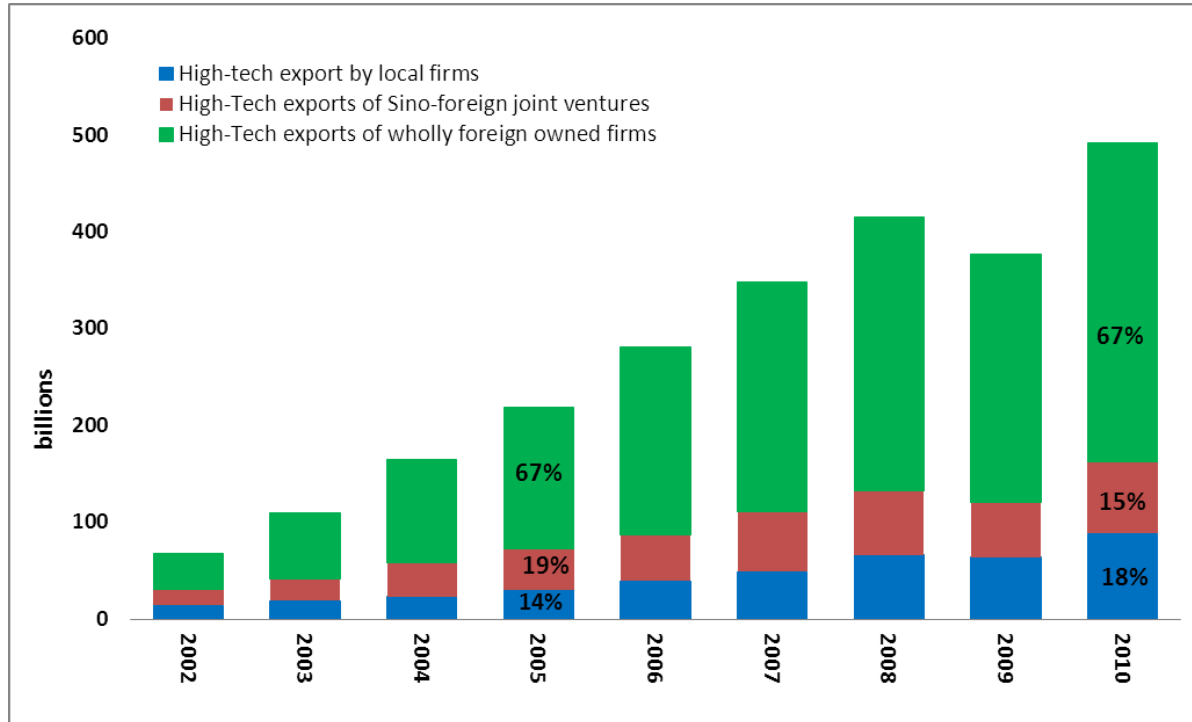


In fact, all **iProducts** sold in the global market are assembled exclusively by Chinese companies.

Case Study II: Laptop Computers

- Total unit cost of laptop in 2009: \$484
- PRC exported: **\$52.5 billion** worth of laptops
- Representing **14% of its high-tech exports**
- Assembly represents **3%** of entire cost of manufacturing a laptop computer. (Dedrick, Kraemer, and Linden 2009)
- Value-added per laptop: \$14.5
- PRC's total share in value-added: **\$1.6 billion**

Who Produces PRC's High-Tech Exports?



Source: Xing (2013)

- Majority of high-tech exports produced by **foreign invested firms**.
- Extension of **production networks** of MNEs from Japan, Korea, Taipei (China), Singapore etc. to PRC to take advantage of lower production costs.

The Role of Taipei (China) in PRC's High-Tech Exports

Key Facts of Taipei (China) owned IT Companies, 2007

	Laptop PC	Desktop PC	Motherboard	LCD Monitor for PC	Servers	Digital Camera
Rank in Market Share	1	2	1	1	2	2
Annual Output (1,000 unit)	90,165	46,055	149,097	117,539	2,950	49,896
Global Market Share (%)	92.8	32.6	97.2	70.2	35.2	42.2
*Exports as a Share of Output (%)	91.5	82.8	73.7	80.5	89.4	95

* Exports consist of all sales outside mainland PRC and Taipei, China.

Source: Taipei, China's Information Industry Yearbook 2008 (MIC).

- In 2007, Taipei (China) ranked No. 1 in laptop PC, motherboard, and LCD monitor.

The Role of Taipei (China) in PRC's High-Tech Exports

Shares of Major IT Products by Taipei (China) and Made in PRC (%)

	Laptop PC	Desktop PC	Motherboard	Server	LCD Monitor for PC	Digital Camera
2003	54.3	51.7	73.9	21.3	79.1	89.2
2004	77.8	54.1	86.2	25	84.6	98
2005	92.8	57.5	91.6	42.2	88.7	98.5
2006	96.9	63.9	94	53.4	90.6	99
2007	97.8	71.7	96.4	57.5	91.5	98

Source: Taipei, China's Information Industry Yearbook. Various issues.

- In 2009, 95% of Taipei (China)'s assembling capacities in ICT products were located in PRC.

Conclusion

- By joining global production networks, China's processing exports rose from \$44 billion to \$740 billion during the period of 1993-2010;
- Processing trade contributed 100% to China's annual trade surplus from 1993 to 2010;
- The success of China's high-tech exports, such as ICT products exports is also attributed to its participation in the global production networks growth;
- Despite of the low value added per unit, total value added measured by the export volume is high;
- Identify national comparative advantages and plugging into the right position at the global production fragmentation is an effective development strategy



Thank You!