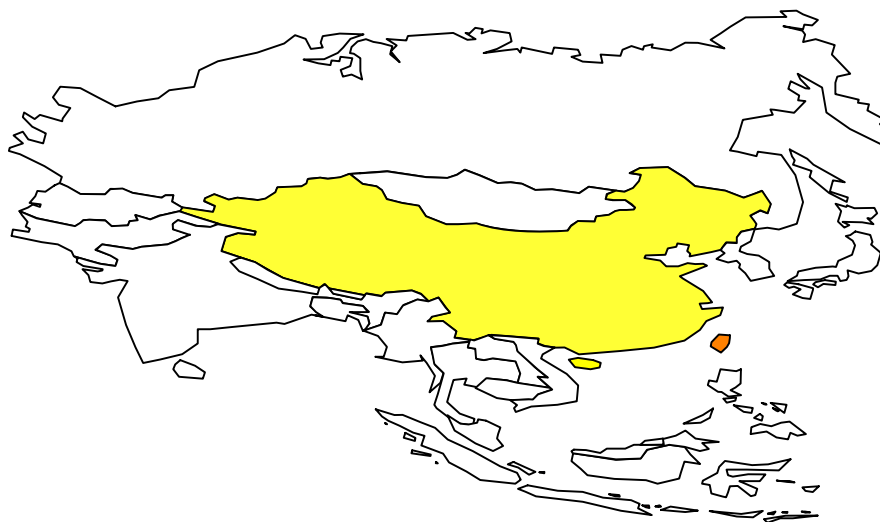


The Nature of Chinese Exports of Advanced Technology Products (ATP) to the United States

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*The views expressed in this presentation are solely those of the presenter. They are not meant to represent in anyway the views of the U.S. International Trade Commission or any of its individual Commissioners.



Ancient Computer Expos



- People think what China should export

What China is increasingly exporting



“Everyone knew that we would lose jobs in labor intensive industries like textiles and apparel, but we thought we could hold our own in the capital-intensive, high-tech arena. The numbers we’re seeing now put the lie to that hope – as China expands its share even in core industries such as autos and aerospace.”

Robert Scott, U.S. Economic Policy
Institute, report presented to the U.S.-
China Economic and Security Review
Commission, January 12, 2005

Outline

- Definition and Classification of Advanced Technology Products (ATP) in U.S. and China
- Method of Reconciliation
- Results
- Conclusions and Future Work

Major Results

- **Balance in ATP trade:**
 - China ran a \$41-\$49 billion surplus with U.S. in 2006 based on U.S. Census ATP definition, but not in every sector
- **Role of processing trade:**
 - More than 95% of China's ATP exports were processing exports during 1995-2006
- **Role of different types of firms:**
 - More than 90% of China's ATP exports to U.S. were produced by Foreign Invested Enterprises (FIE) in China
- **Role of government policy zones:**
 - About 65% of China's ATP exports to U.S. were from government policy zones in 2006
- **Relative price and within-product specialization:**
 - A huge quality gap still exist between Chinese ATP exports to U.S. and U.S. ATP exports to China

Current Definition of High-tech Trade in the United States

The U.S. Census Advanced Technology Products (ATP) list: Product based

- Starts from the development of broad technology fields commonly considered as advanced technology
- Only products significantly associated with one or more of these leading edge technologies can be deemed as ATP
- Roughly 700 of the 20,000 HTS-10 codes in use have been identified as ATP by Census

Classification of ATP in the United States

Technology Field	Example of Products
Biotechnology	Vaccines for human medicine, vaccines for veterinary medicine
Life Sciences	Magnetic resonance imaging apparatus, electrocardiographs, artificial joints
Opto-Electronics	Rangefinders, stereoscopic microscopes, lasers other than laser diodes
Information & Communications	Personal computers, facsimile machines, communications satellites, camcorders
Electronics	Particle accelerators, semiconductors, smart cards
Flexible Manufacturing	Industrial robots, thermostats, semiconductor manufacturing equipment
Advanced Materials	Optical fiber cables
Aerospace	Turbojet aircraft engines, new multi-engine airplanes
Weapons	Guided missiles, self-propelled artillery weapons
Nuclear Technology	Nuclear reactors, uranium compounds enriched in U235

Current Definition of High-tech Trade in China

Name	Version	Characteristics	Intended Purpose
China's High and New Technology Export Products Catalogue	2000	8 fields and 1900 products	Policy orientation -Basis for export value added tax (VAT) rebate benefits
	2003	9 fields and 1835 products	
	2006	9 fields and 1601 products	
China's High and New Technology Product Import and Export Statistics Catalogue	1999	9 fields and 229 HS-6 codes	Statistical orientation - used in Customs' "Monthly Statistical Report" since 2002

Method of Reconciliation

- Calculate the ATP value share in both U.S. imports from and exports to China at HS-6 level based on U.S. trade statistics
- Apply these same shares to China Customs data at HS-6 level
- Major advantages:
 - Blend the information available in the Chinese data on firm ownership (SOE, FIE etc.), customs regime (normal, processing, etc), and policy incentive zones (SEZs, high-tech zones, etc) with the information in the U.S. data on the finely disaggregated definition of ATP
 - Obtain more detailed structural information on U.S.-China ATP trade.

Why U.S. ATP Classification Was Used in Our Reconciliation Exercise

- Chinese HNTF Exports and Imports Statistical Catalogue is a near-duplication of the 2000 version of the U.S. Census ATP list at HS-6 level.
- Chinese HNTF Export Catalogue, used for VAT rebates includes many “new” products that are clearly not high-tech (such as starches, some processed food, furniture, etc.).
- China's classification resulted in a much higher ATP share in China's total trade than that based on U.S classification (Table 9 in the joint paper).

U.S. Census 2000 version ATP list and China's HNTF Import and Export Statistics Catalogue

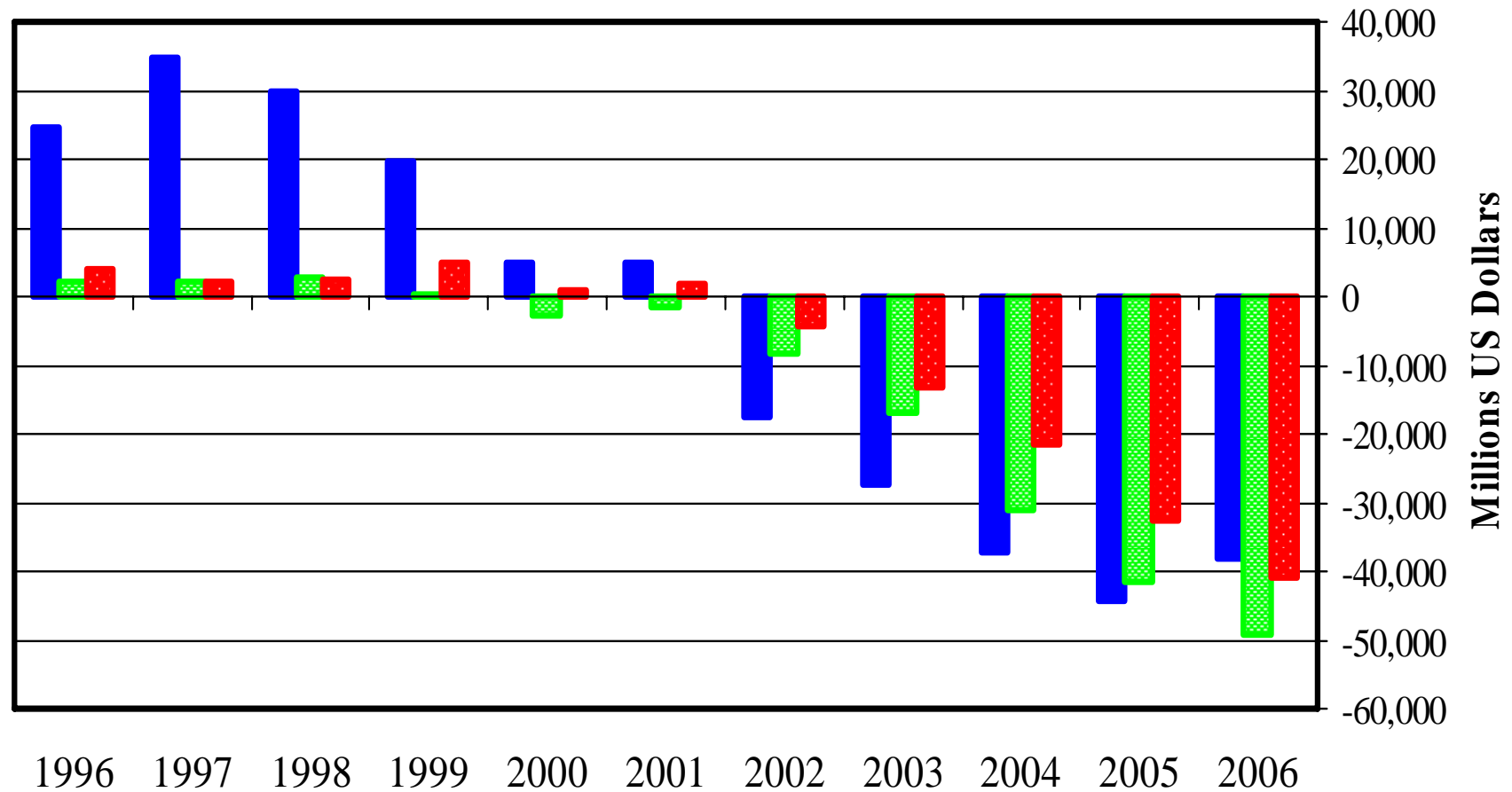
Technology Field	U.S.-China Common Code	U.S. only code	China only code
Biotechnology	7	0	0
Life Science	62	6	0
Opto-Electronics	15	1	0
Information & Communications	37	1	0
Electronics	22	0	0
Flexible Manufacturing	54	1	0
Advanced Materials	4	0	0
Aerospace	17	2	0
Weapons	5	7	0
Nuclear Technology	6	1	0
Total	229	19	0

Three Types of Broad Incentives Affect China's Export Behavior

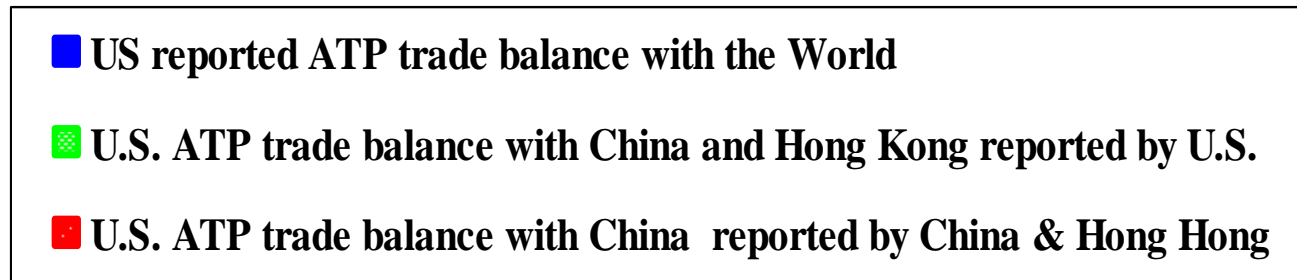
- Who you are (Domestic Firms or FIEs)
- What you do (“imports for exports” --processing exports or ordinary exports)
- Where you are located (exports produced in various government policy zones or outside these zones)

Thus, the pattern of exports deviates somewhat from pure comparative advantage

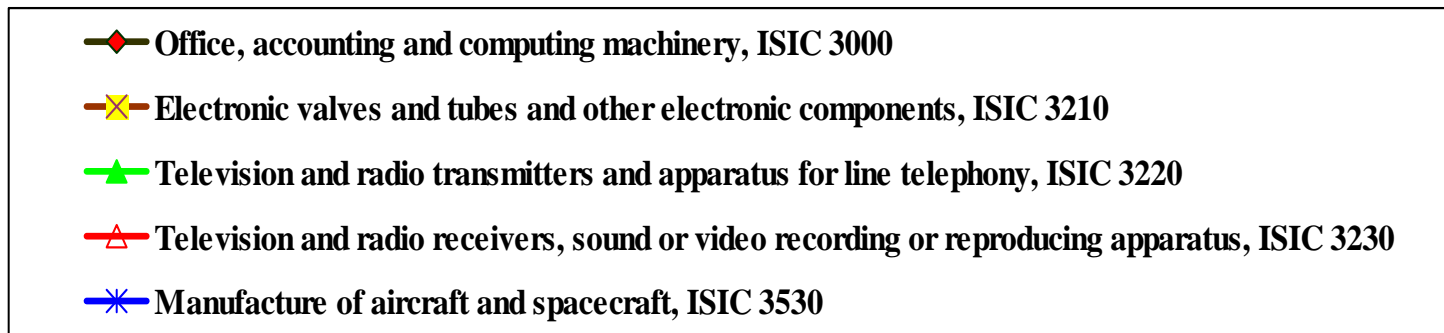
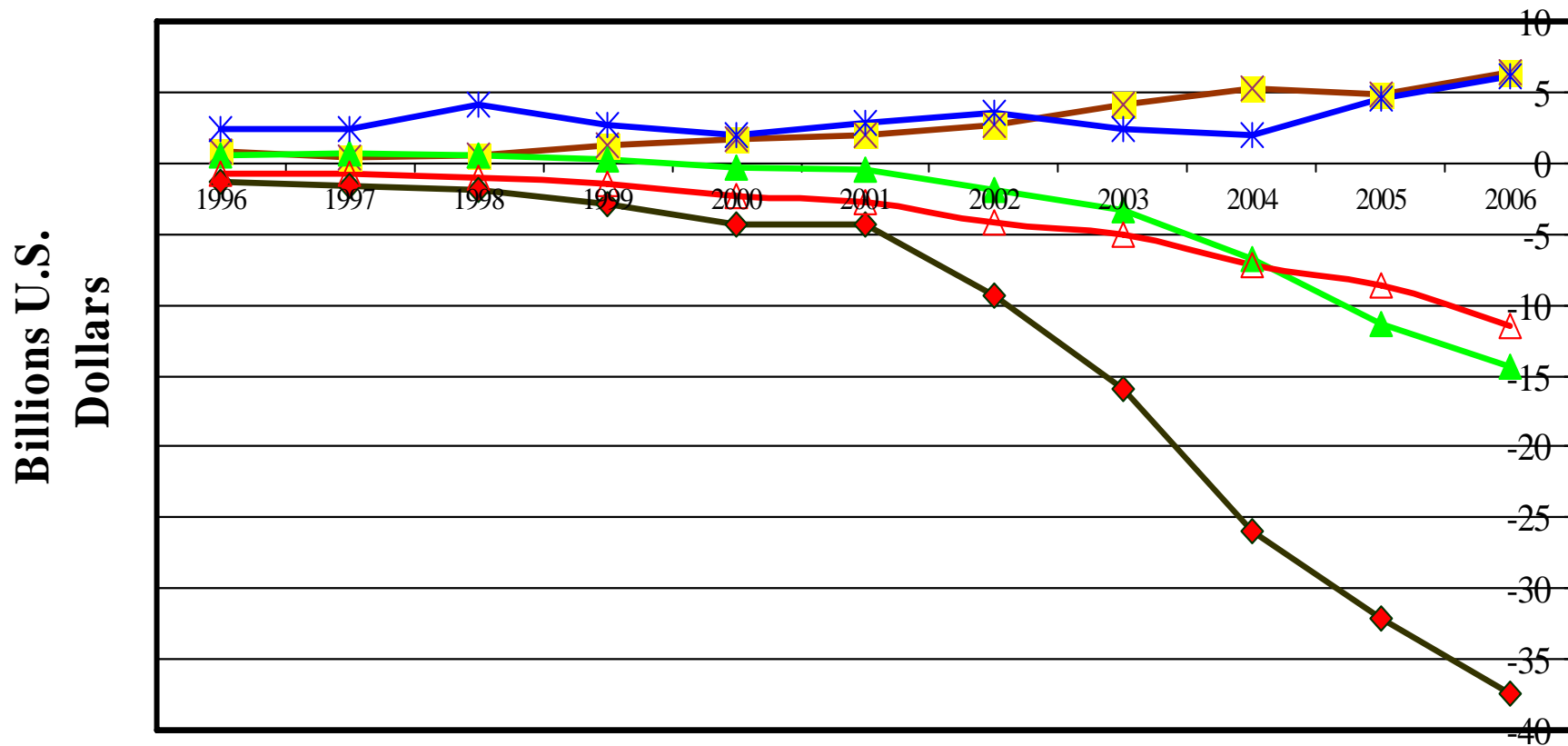
The U.S. Deficit in ATP Trade with China Was between \$41-49 Billion in 2006



Data Source:
U.S. Census,
China and Hong
Kong Customs

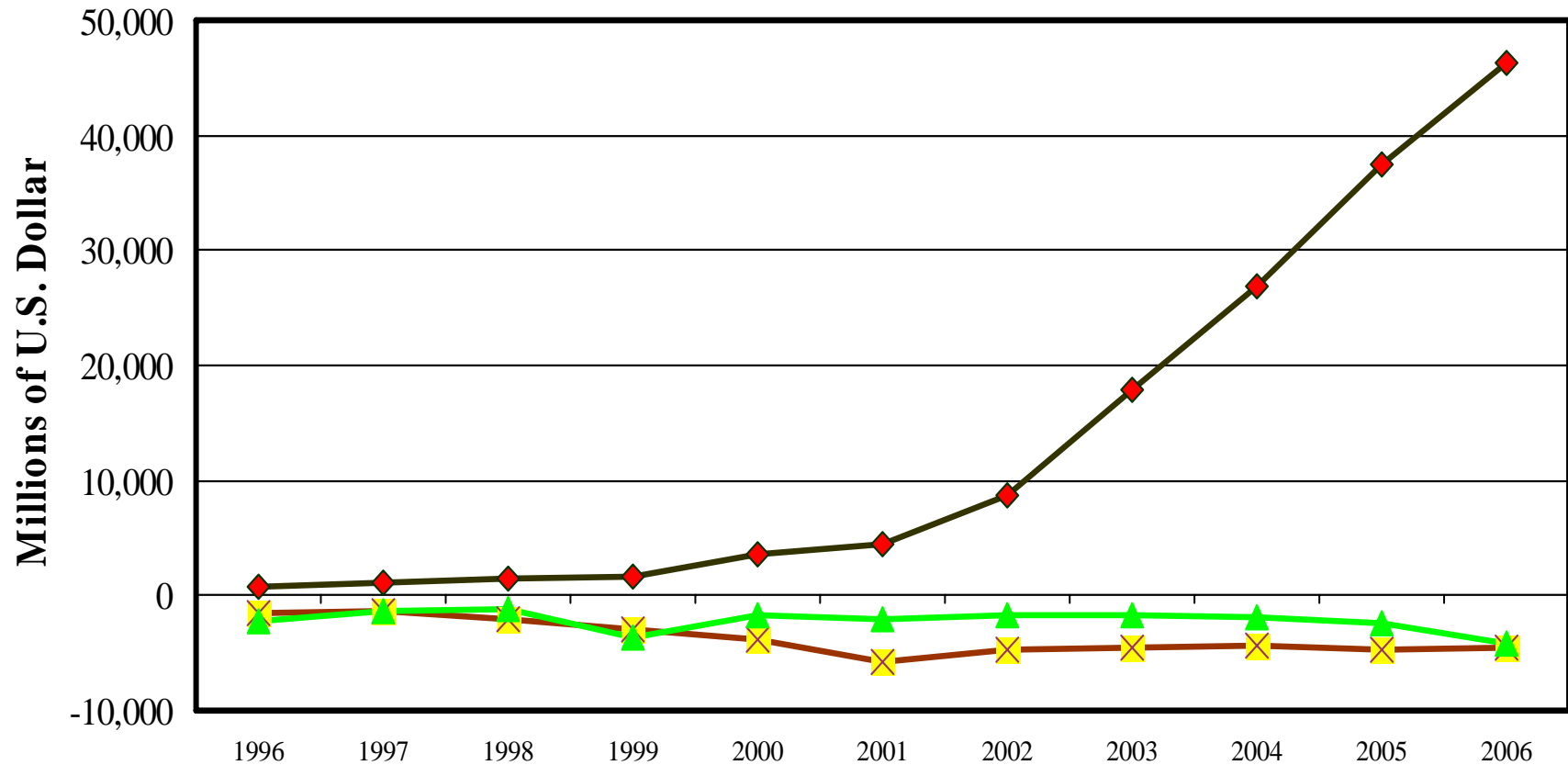


U.S. ATP trade Deficient with China was Concentrated in Information and Communication Technology, but still Enjoys Bilateral Surpluses in Electronics and Aerospace Technology



Data Source:
U.S. Census

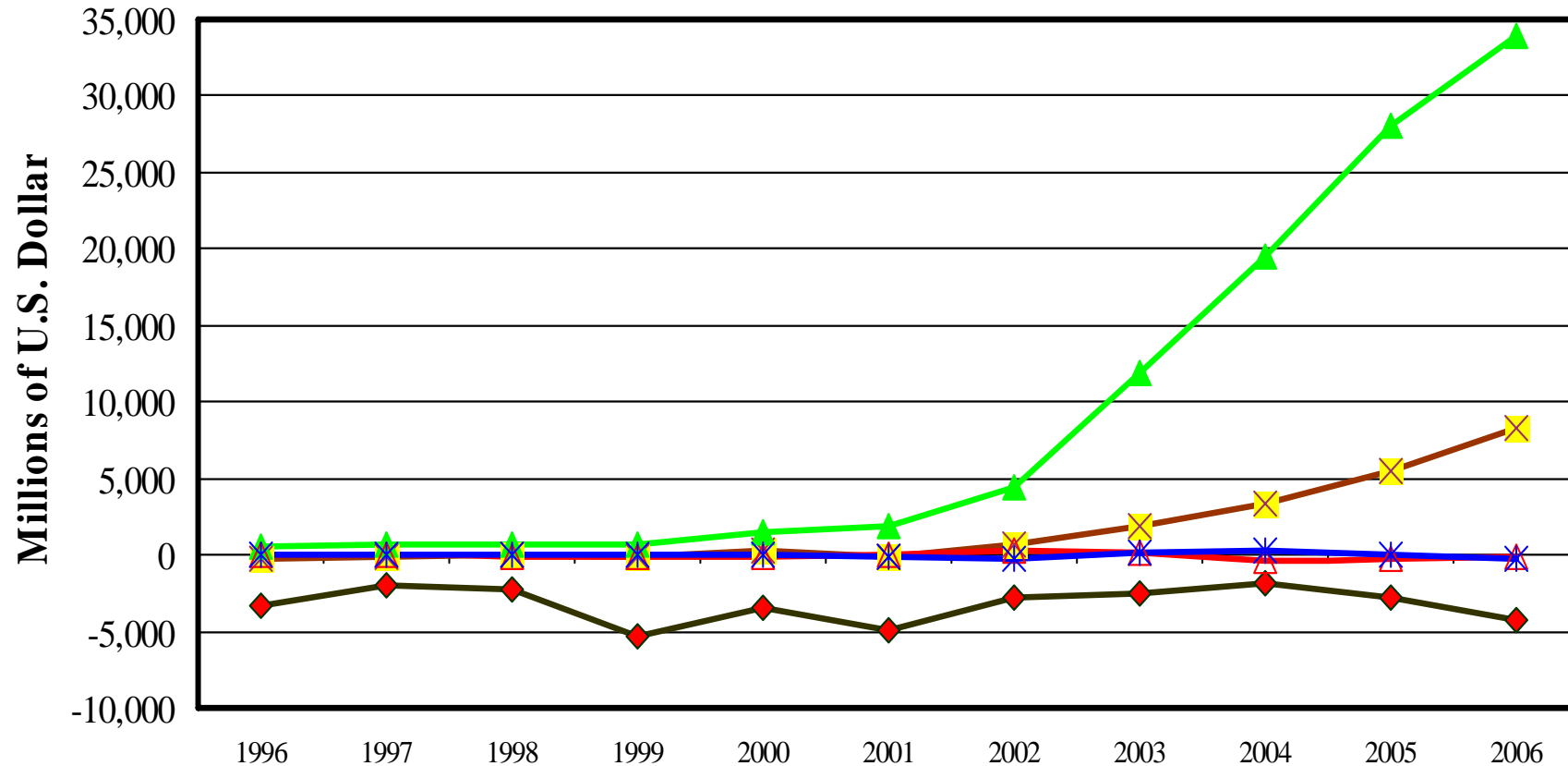
China's ATP Trade Surplus with the U.S. was Due Solely to Processing Exports



Data Source: China Custom Statistics, U.S. Census ATP definition



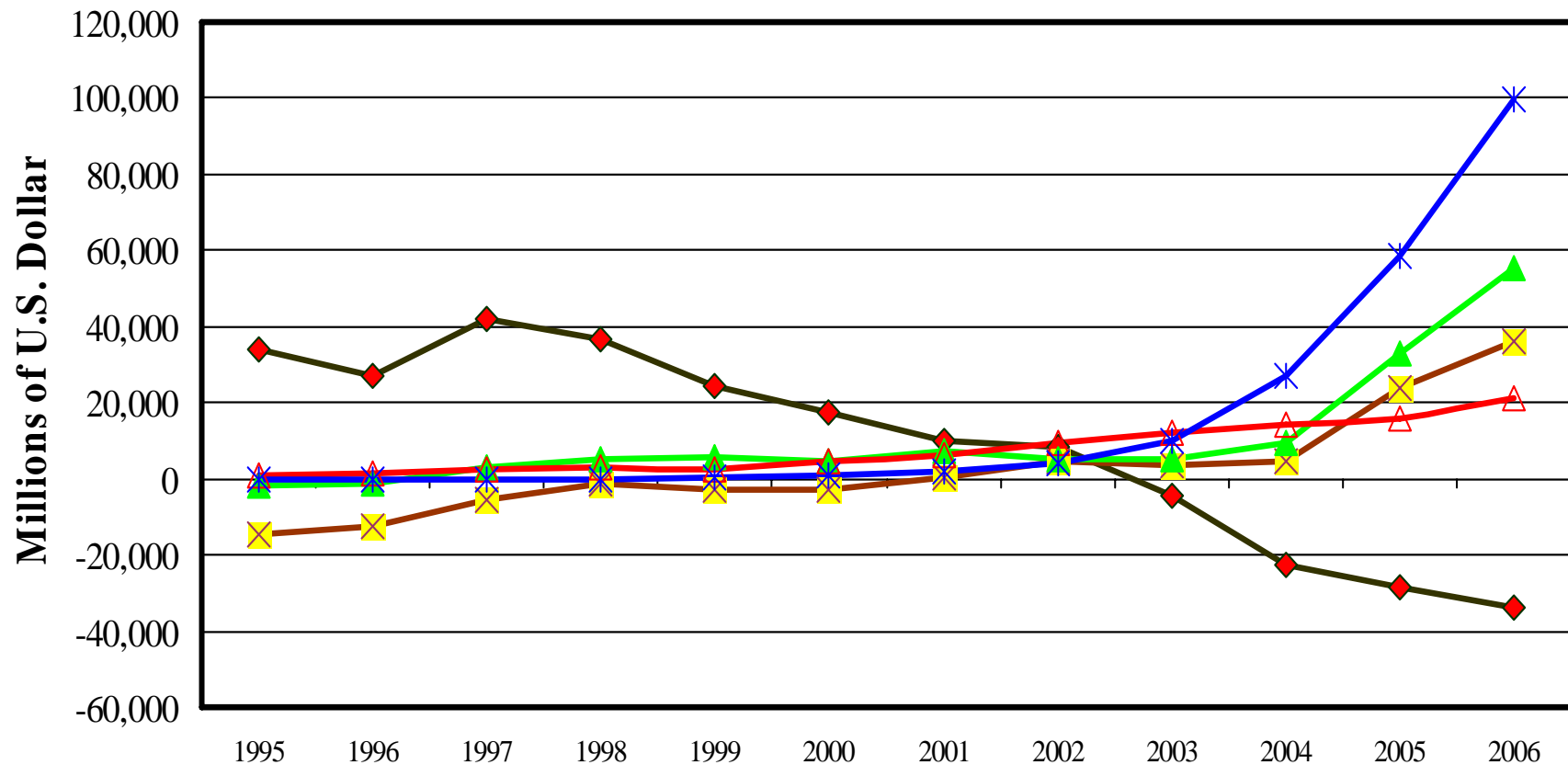
China's ATP Trade Surplus with U.S. was mainly Generated by Foreign-Invested Enterprises



Data Source: China Custom Statistics, U.S. Census ATP definition



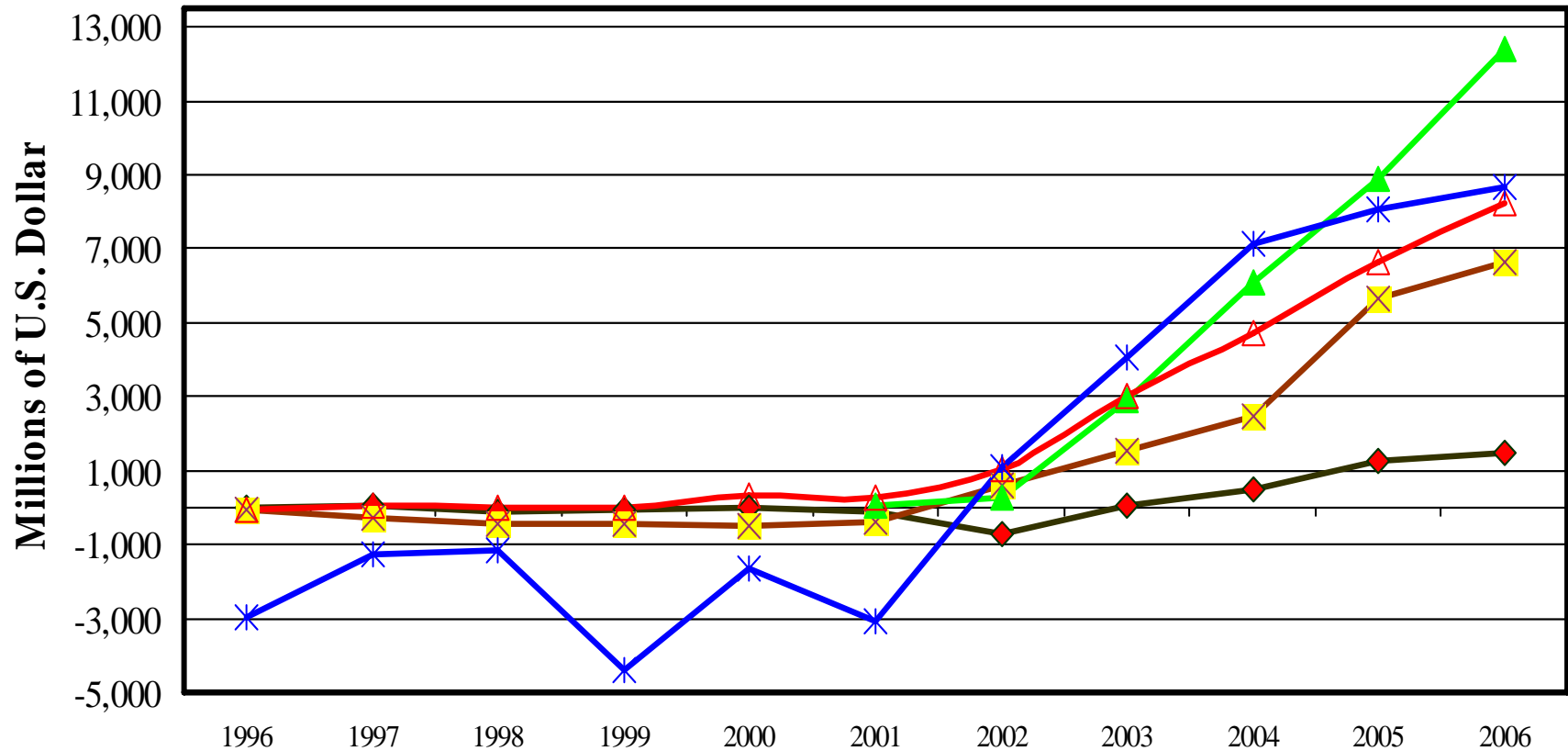
Since China's WTO Accession, Private Firms have generated the Largest Part of the Trade Surplus for All Commodities



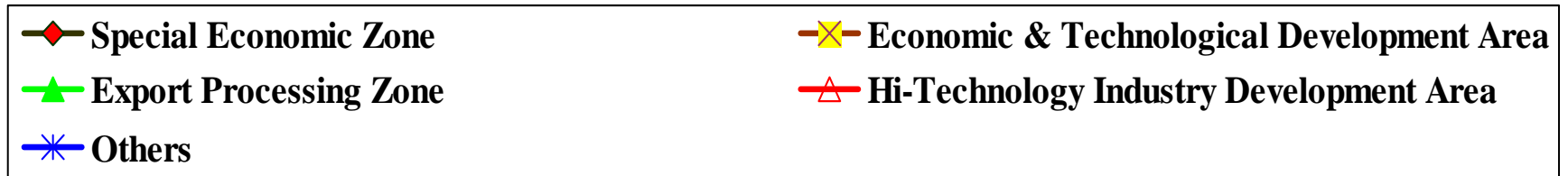
Data Source: China Custom Statistics, U.S. Census ATP definition



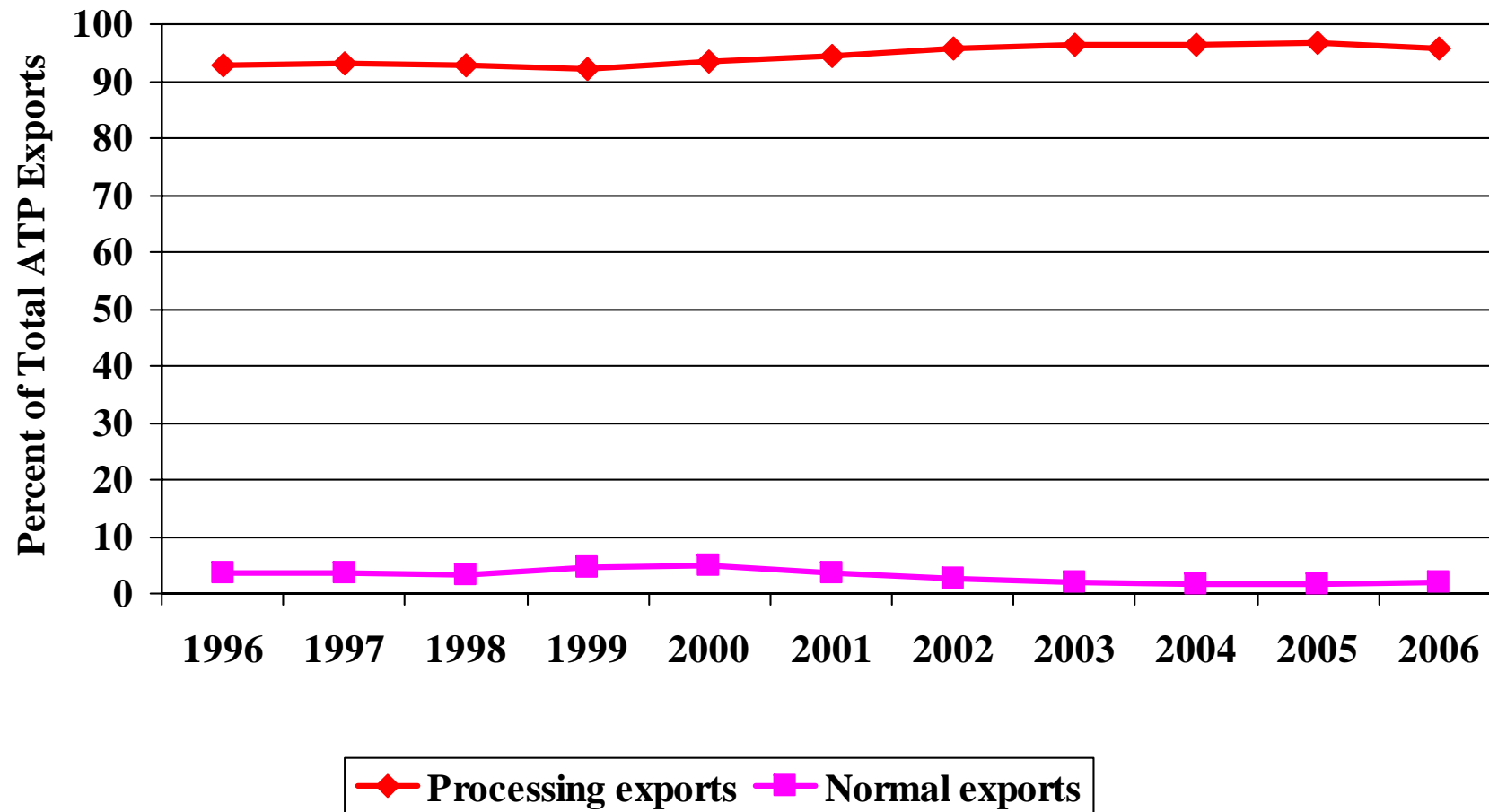
Various Special Economic Zones Contributed Significantly to China's ATP Trade Surplus with the United States



Data Source: China Custom Statistics, U.S.Census ATP definition

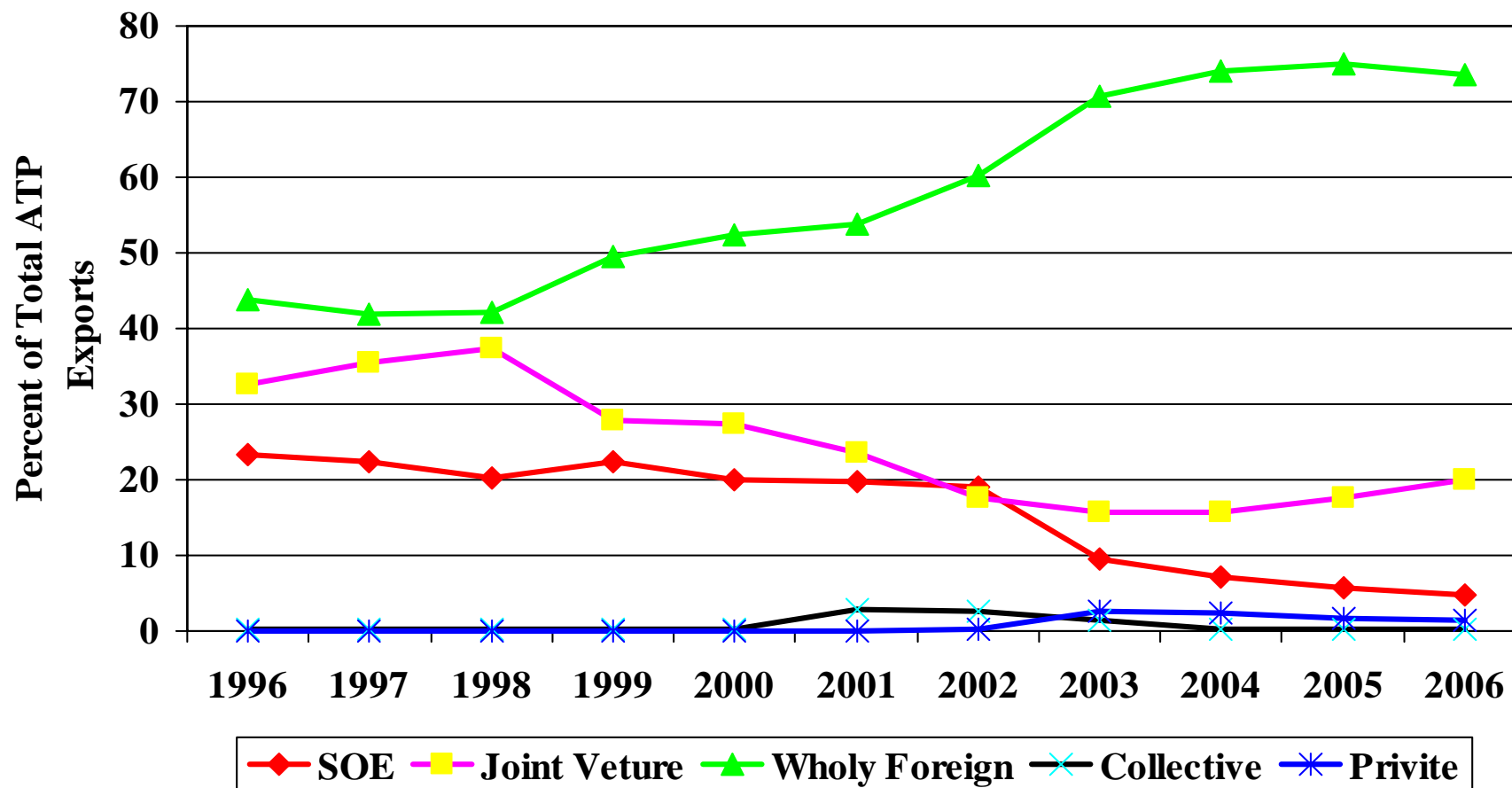


More than 95% of Chinese ATP Exports to U.S. were Processing Exports



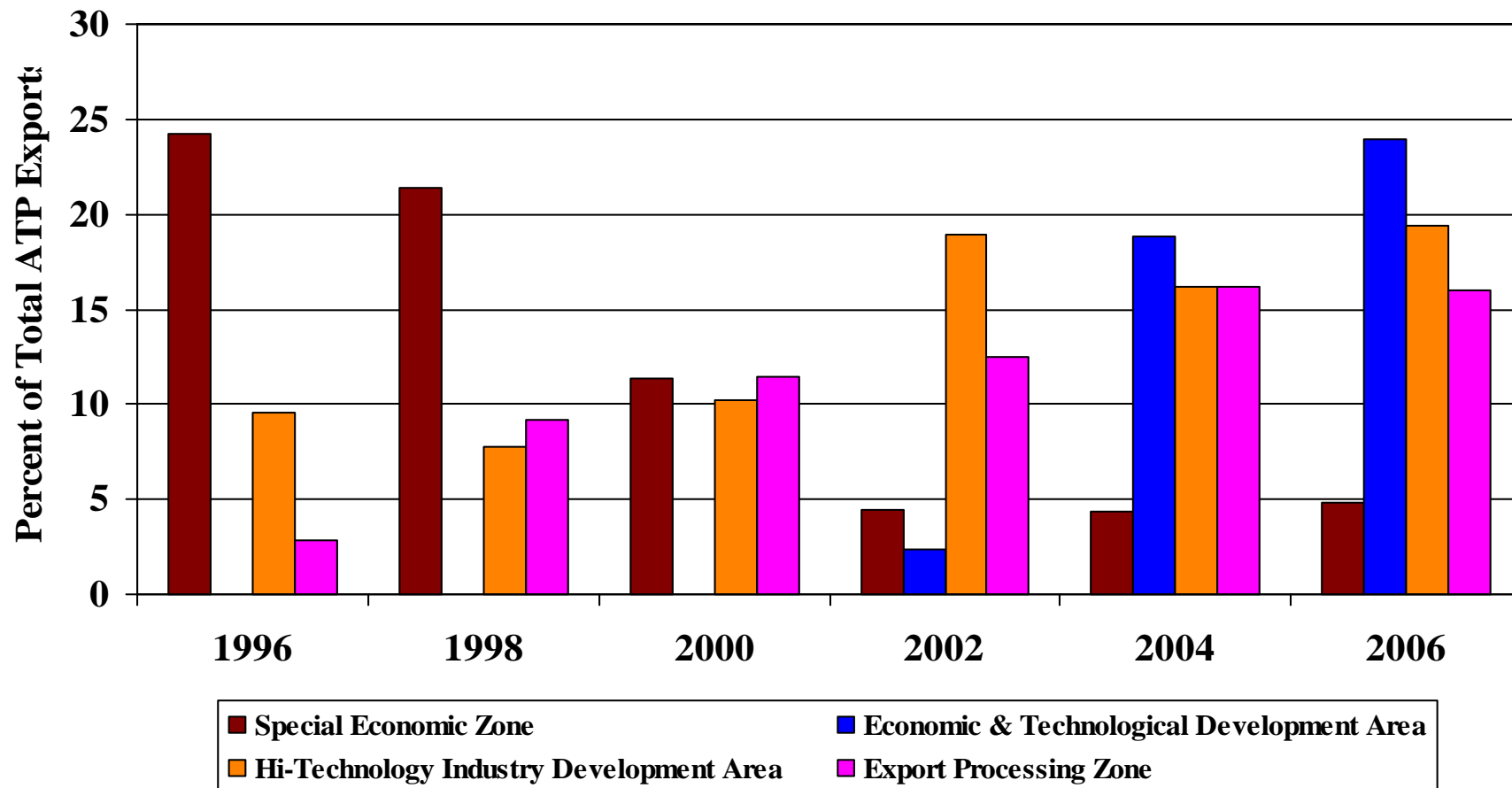
Data Source: China Custom Statistics, U.S. Census ATP definition

Since 2003, about 90% of Chinese ATP Exports to U.S. were Produced by FIEs



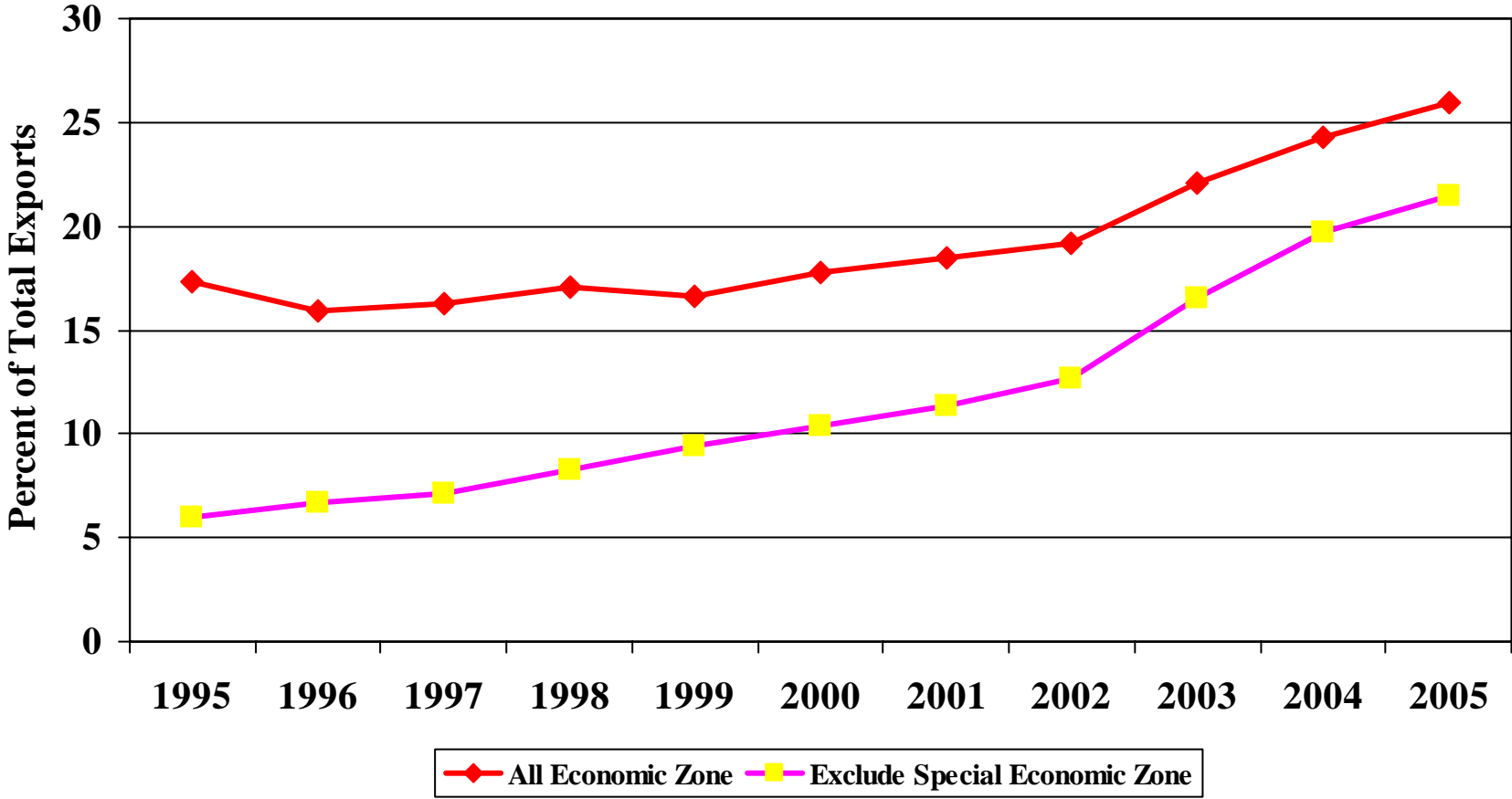
Data Source: China Custom Statistics, U.S. Census ATP definition

About 65% of China's ATP Exports to U.S. Came from Various Government Policy Zones in 2006



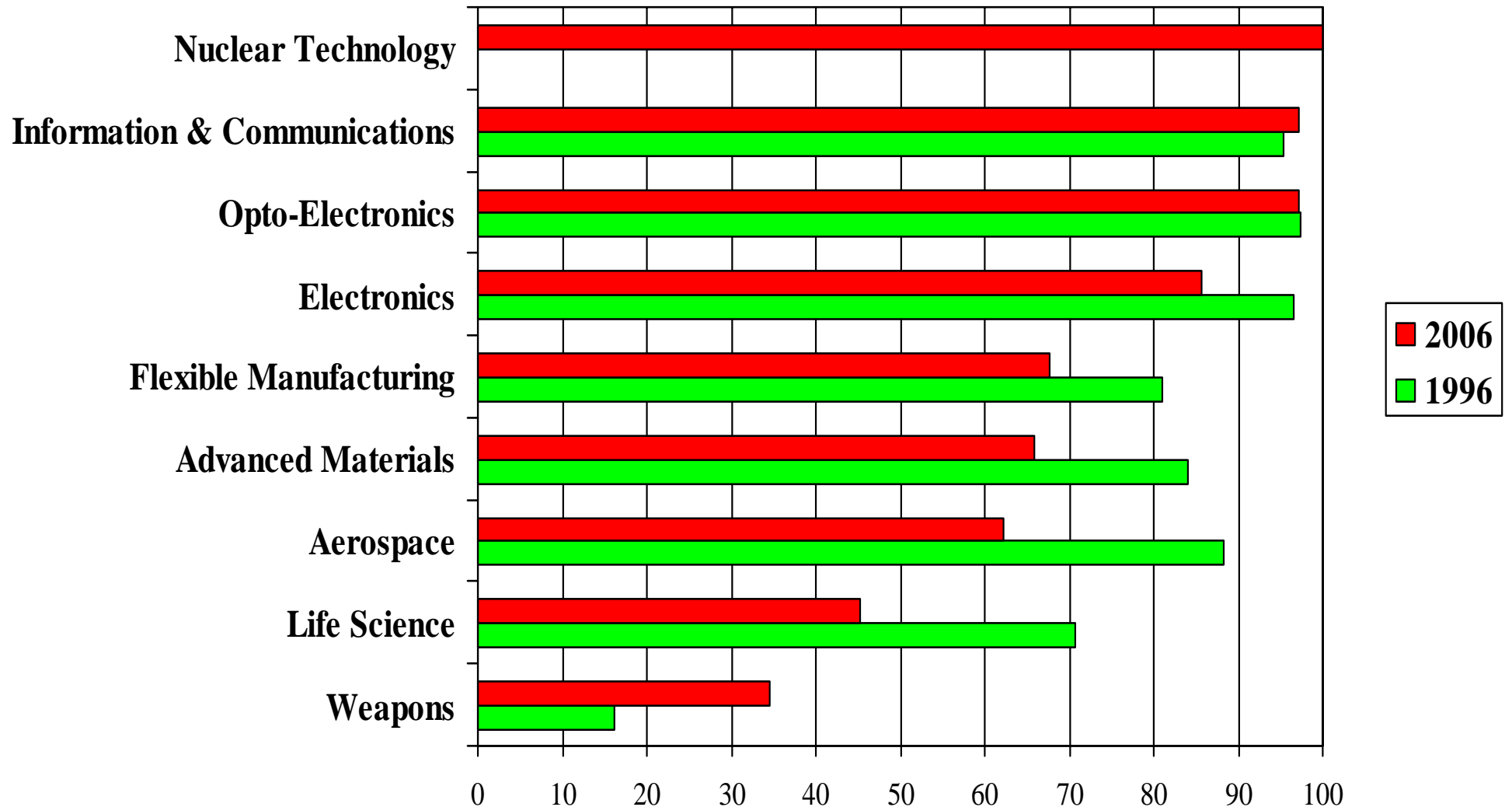
Data Source: China Custom Statistics, U.S. Census ATP definition

Only about 25% of China's Merchandise Exports to the World were from these Government Policy Zones



Data Source: China Custom Statistics

China's Processing ATP Exports as Percent of Total ATP Exports to U.S. by Technology Fields 1996, 2006



Data Source: China Custom Statistics, U.S. Census ATP definition

Relative Price of U.S.-China ATP Trade

- Recent literature of international trade emphasizes the importance of specialization across varieties within a product (Schott, 2004)
- Fontagne, Gaulier and Zignago (2007) show that China's export structure is more similar to Japan, U.S., and EU than to Brazil and Russia
- However, judged on unit values, Chinese exports are more likely to be in the low end of the market than those of the high-income countries

Unit Value: Example 1

Exports to the World

- Color video monitor (HS 852821), 2005
 - Unit value of G-3 exports = \$467.4
 - Unit values in China's exports
 - Wholly foreign owned firms = \$241.5
 - Export Processing Zones = \$347.8
 - Processing/High-tech zones = **\$456.7**
 - Processing/outside any zones = \$ 56.8
 - Normal trade/high-tech zones = **\$364.8**
 - Normal trade/outside any zones = \$ 73.6
 - State-owned firms = \$ 207.0
 - Joint ventures = \$ 126.3
 - Private firms = \$ 77.2

Unit Value: Example 2

U.S. exports to China and China exports to U.S. HS 9011, 2006

HTS number	HTS Product	Total exports U.S. Dollars	Unit value U.S. Dollars
U.S. exports to China			
9011100000	Stereoscopic microscopes	487,179	3,431
9011200000	Microscopes, for microphotography & cinema	693,491	11,754
China exports to U.S.			
9011104000	Stereoscopic microscopes with means to photo image	1,592,944	251
9011108000	Stereoscopic microscopes	3,647,098	115
9011204000	Microscopes with means to photograph the image	1,459,958	215
9011208000	Microscopes, exc with means to photograph the image	1,864,786	61

Conclusions 1

Trade statistics from different sources consistently show that the U.S. trade deficit in ATP with China has grown rapidly in recent years based on the current U.S. Census ATP classification

Chinese surplus of ATP trade with U.S. is concentrated in information and communication technology, while U.S. still enjoys sizeable bilateral surpluses in electronics and aerospace technology

More than 95 percent of the rapidly expanding ATP exports from China to U.S. is processing trade, which is closely related to FDI and largely carried out by foreign firms

Conclusions 2

Various special economic zones and areas have largely hosted the rapid expansion of Chinese ATP exports to the U.S.

The emergence of China as a major supplier to the U.S. ATP market is closely associated with a combination of three major factors:

- Fragmentation of global production
- China's comparative advantage in manufacture
- Chinese Government preference policies to processing trade and foreign invested enterprises

Conclusions 3

An analysis of unit value adds important insights.

Chinese ATP imports from U.S. were dominated by large-scale, sophisticated, high-valued equipment and devices, while Chinese ATP exports to the United States were still mainly small-scale products or components in the low-end of the ATP value-added chain.

Even though China has begun to export a set of ATP products similar to those exported by the U.S. in recent years, there appears to remain a considerable quality and technological gap between Chinese ATP exports and U.S. ATP exports.

- **Future work:**

- Refine the definition of ATP and improve ATP classification
- Conduct more detailed studies on how various policy incentive impact China's ATP trade
- Conduct more careful analysis of China's role and position in world ATP supply chain



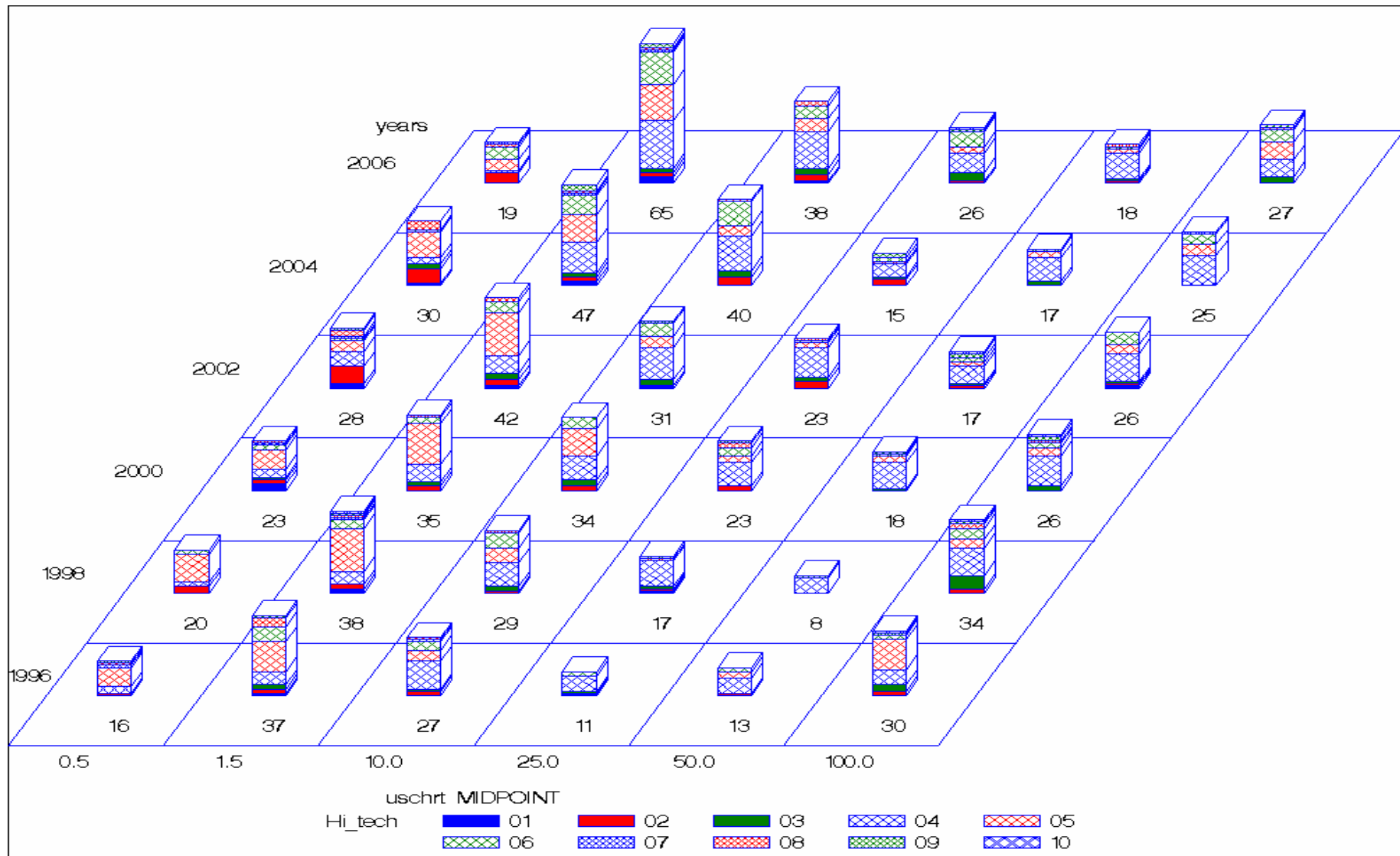
Thank You

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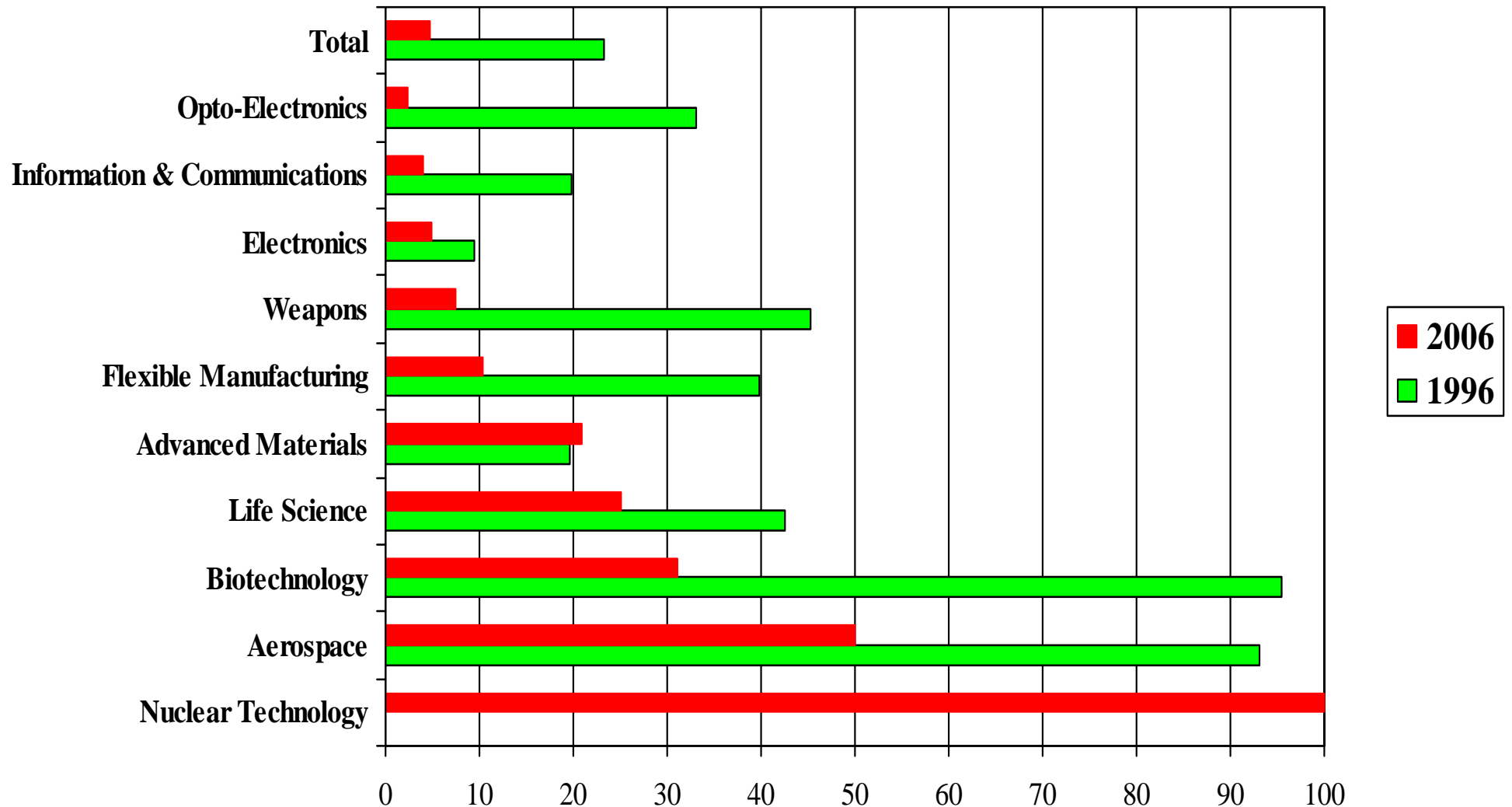
Unit Value Ratio between U.S. Exports to China and China Exports to the U.S.

Two way traded Advance Technology Product, 1996-2006



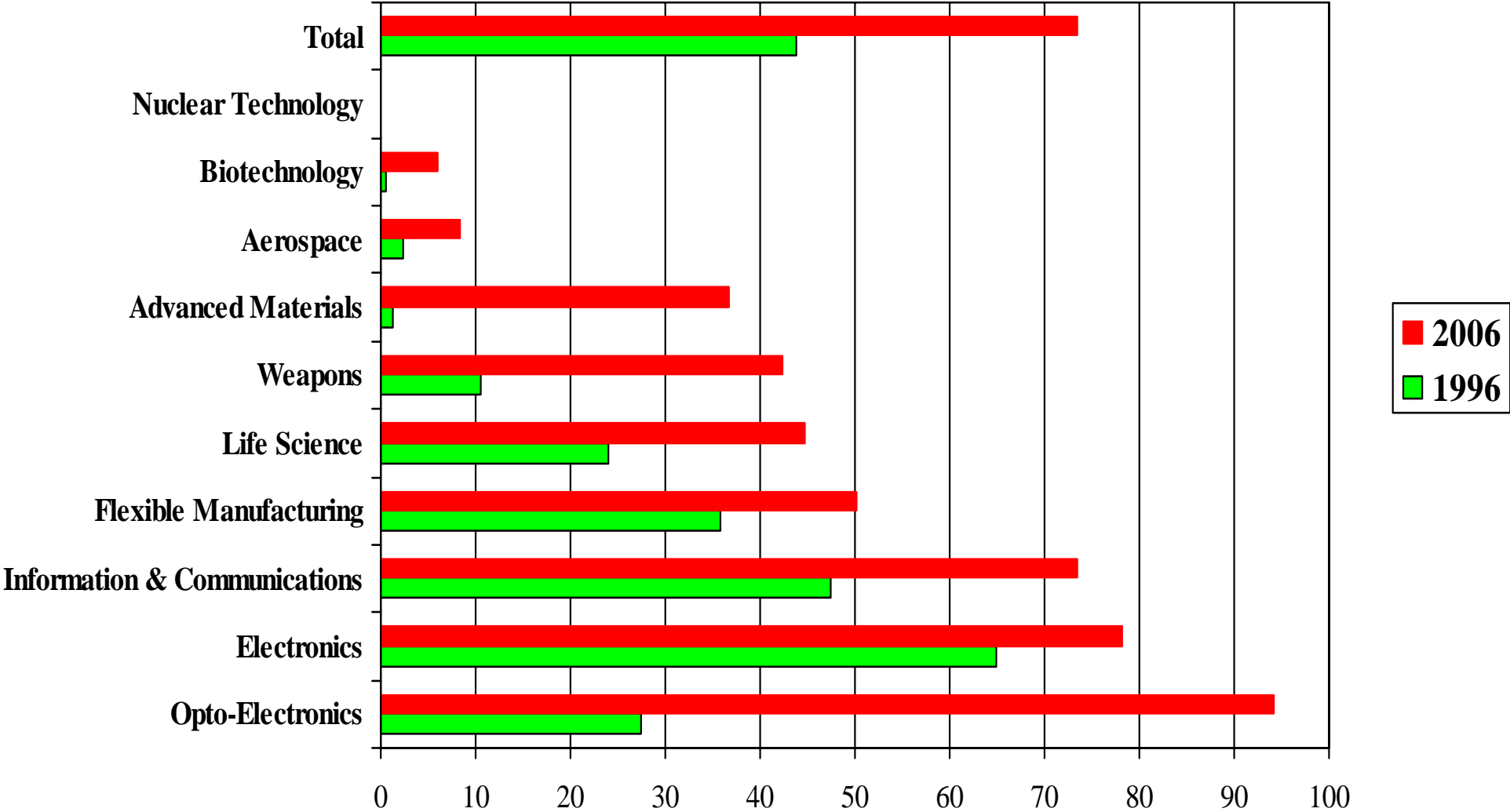
Share of SOEs in China's Total ATP Exports to U.S. by Technology Fields

1996, 2006



Data Source: China Custom Statistics, U.S. Census Definition

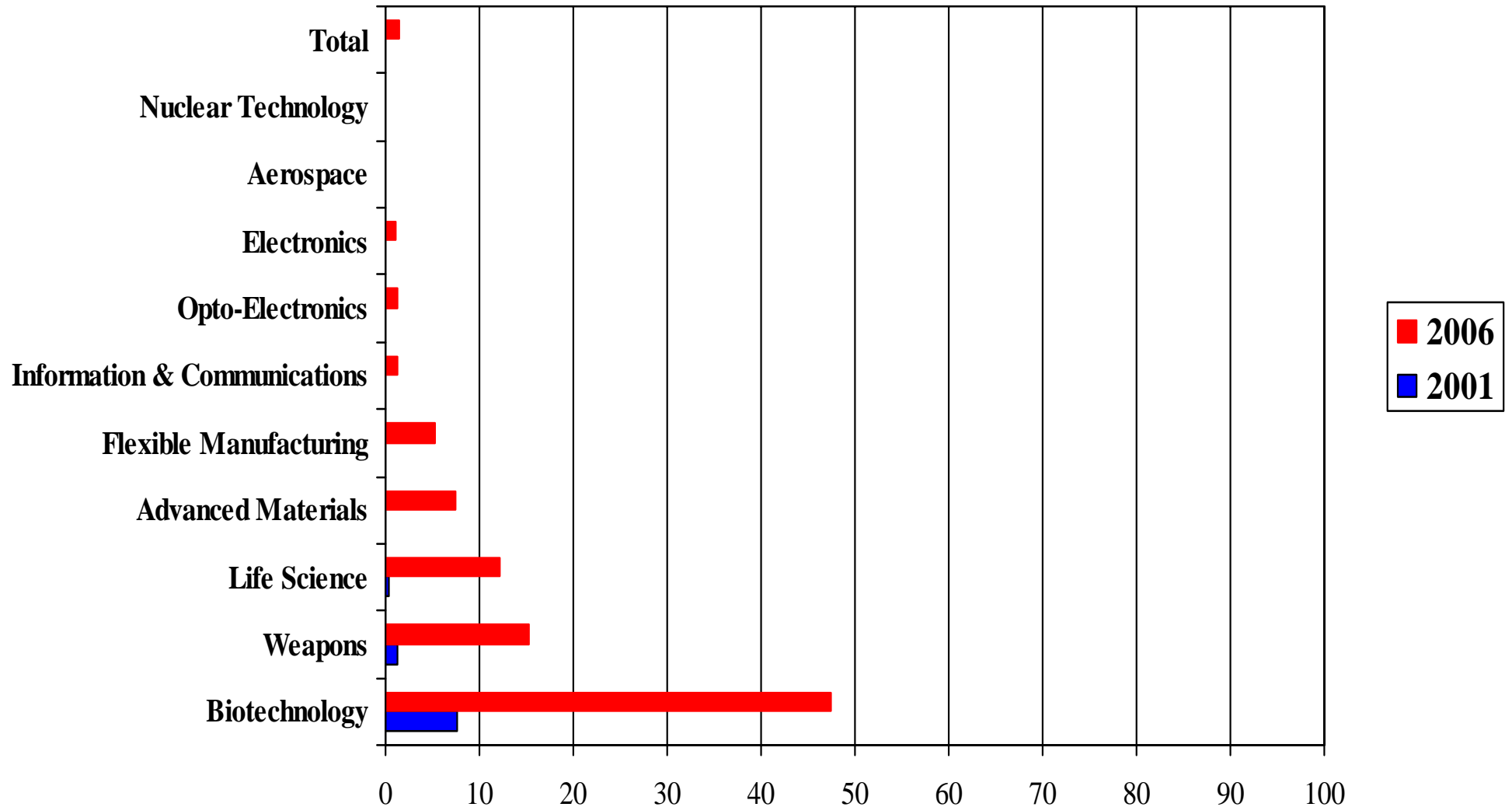
Share of FIEs in China's Total ATP Exports to the U.S. by Technology Fields 1996, 2006



Data Source: China Custom Statistics, U.S. Census ATP definition

Share of Private Firms in China's Total ATP Exports to U.S. by Technology Fields

2001, 2006



Data Source: China Custom Statistics, U.S. Census definition