Working Paper

U.S.-China

Advanced Technology Trade

An Analysis
For
U.S.-China Economic and Security Review
Commission

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About the Manufacturing Policy Project

MPP is a nonprofit, nonpartisan research organization that undertakes public policy-related studies. The MPP reports, books and related materials examine issues central to the continuing development of the U.S. economy.

The U.S.-China Economic and Security Review Commission contracted this as an independent working paper. It represents the view of the authors and should not be considered as having the endorsement of the Commission or any individual Commissioner.

U.S.-China

Advanced Technology Products Trade

The creation, development and maintenance of high technology industries are central to the development strategies of all advanced economies. The high growth nations of Asia have been particularly attentive to such industries, seeking the innovation, market share, new products and efficiencies that such industries bring. These countries want the better jobs, higher wages and expanded knowledge these industries facilitate.

A measure of a nation's effectiveness in advancing its economy into such industries is its trade in advanced technology products.

The major findings of this paper are:

- China is a major producer of advanced technology products, shipping $45 billion of such goods to the United States in 2004 – nineteen percent of all U.S. ATP imports.

- China is a major U.S. supplier of Opto-electronics, information and communications equipment, and electronics.

- China and ten of the nations surrounding it (the China Sphere) now supply 59 percent of all ATP products imported into the U.S.

- The China Sphere supplies the United States with 18 percent of all imported ATP Life Science products, 60 percent of Opto-electronics, 77 percent of information and equipment ATP, 52 percent of electronics ATP, 53 percent of flexible manufacturing ATP, and 67 percent of advanced materials ATP.

- The U.S. ran a $60 billion ATP trade deficit with the China Sphere in 2004.

- The U.S. imported $140 billion of Advanced Technology Products from the China Sphere in 2004, which is 270 percent more than it imported from the European Union.

What are Advanced Technology Products?

The commodity classification codes used to report U.S. merchandise trade are about 22,000 in number. This permits detailed identification of individual products. Of these 22,000 items, the U.S. Commerce Department has identified roughly 500 items as "advanced technology" codes.

The chosen codes come from an acknowledged high-technology industry with products that are leading edge in that field.

The Commerce Department changes what makes up the 500 items from time to time to reflect technological changes. The ultimate result is a monthly reporting by the Commerce Department of trade in Advanced Technology Products (ATP). To provide detail, the ATP reports are divided into 10 fields, as follows:

(01) **Biotechnology --** Focuses on medical and industrial applications of advanced scientific discoveries in genetics to the creation of new drugs, hormones and other therapeutic items for both agricultural and human use.

(02) **Life Science --** Concentrates on the application of scientific advances (other than biological) to medical science. Recent advances, such as nuclear resonance imaging, echocardiography, and novel chemistry, coupled with new production techniques for the manufacture of drugs have led to many new products for the control or eradication of disease.

(03) **Opto-Electronics --** Encompasses electronic products and components that involve the emitting and/or detection of light. Examples of products included are optical scanners, optical disc players, solar cells, photosensitive semiconductors and laser printers.

(04) **Information & Communications --** Focuses on products that are able to process increased volumes of information in shorter periods. Includes central processing units, all computers and some peripheral units such as disk drive units and control units, along with modems, facsimile machines and telephonic switching apparatus. Examples of other products included are radar apparatus and communication satellites.

(05) **Electronics --** Concentrates on recent design advances in electronic components (with the exception of opto-electronic components) that result in improved performance and capacity and in many cases reduced size. Products included are integrated circuits, multi-layer printed circuit boards and surface-mounted components such as capacitors and resistors.

(06) **Flexible Manufacturing --** Encompasses advances in robotics, numerically-controlled machine tools, and similar products involving industrial automation that allow for greater flexibility to the manufacturing process and reduce the amount of

human intervention. Includes robots, numerically controlled machine tools and semiconductor production and assembly machines.

(07) **Advanced Materials --** Encompasses recent advances in the development of materials that allow for further development and application of other advanced technologies. Examples are semiconductor materials, optical fiber cable and video discs.

(08) **Aerospace --** Encompasses most new military and civil helicopters, airplanes and spacecraft (with the exception of communications satellites that are included under Information & Communications Technology). Other products included are turbojet aircraft engines, flight simulators and automatic pilots.

(09) **Weapons --** Primarily encompasses products with military application. Includes such products as guided missiles and parts, bombs, torpedoes, mines, missiles, rocket launchers and some firearms.

(10) **Nuclear Technology --** Encompasses nuclear power production apparatus. Includes nuclear reactors and parts, isotopic separation equipment and fuel cartridges. Excludes nuclear medical apparatus, which is included under Life Science Technology.

Each month, the Commerce Department provides monthly and year-to-date data on U.S. ATP trade both country-by-country and by each of these 10 items.

How does the ATP reporting differ from broader industry-based measures?

The Organization for Economic Cooperation and Development (OECD) identifies five science-based industries that manufacture products and do high levels of research and development as "high technology industries." They are:

(01) Aerospace;
(02) Pharmaceuticals;
(03) Computers and office machines;
(04) Communications Equipment;
(05) Scientific instruments.

The National Science Foundation uses this classification in their Science Indicator reports. Generally, reportage on these industry groups includes all goods produced, regardless of the level of technology in the goods.

ATP reportage, by contrast, is on the 500 or so products that are both leading edge technology and that constitute what the Commerce Department terms "a significant part" of the reported item.

Why do "high-technology" industries and advanced technology products matter?

The production of advanced technology products requires research and development whose benefits often extend into other areas. The work generally requires higher skilled, better-educated and better-paid participants. Often, the development of such goods results in new products and thus new markets, such as the iPod, that can produce a wide array of spin-offs.

The National Science Foundation reports in "Science & Engineering Indicators – 2004" that the global markets for high-technology products are growing at a much faster rate than conventional manufacturers – 6.5 percent v. 2.4 percent in the 22-year period 1980-2001.

Over the past two decades, the United States has increasingly focused it policies toward encouraging the production of higher value-added, technology-driven manufactures. The NSF reports that in the 1980s roughly 10 percent of U.S. manufacturing production was in such industries. By 2001, this had risen to about 23 percent of U.S. manufacturing output. Japan and the European countries experienced the same shift. Japan went from having 7.3 percent of its industrial output being high technology based in 1980 to more than 15 percent in 2001.

During the decades of the 1980s and 1990s, the United States was able to command slightly more than 30 percent of the global high-technology market. Japan's share stood at almost 20 percent in the early 1980s and then dropped to less than 14 percent by 2001. Not reflected in these numbers is the vast amount of foreign direct investment and production that Japan made during that period – often shifting advanced production outside of that nation. Nor does this data capture the commanding lead Japanese companies have taken in advanced manufacturing.

The China Factor

China is now the world's largest recipient of foreign direct investment. Despite the scale, which now exceeds $50 billion annually, Chinese leaders have approached their national development in a systematic and far-looking manner. They, too, realize the benefits to be derived from advanced technology production and high-tech industries. Accordingly, they have encouraged such investment with many and substantial incentives – some positive and some negative. As a result, most of the major corporations from Europe, Japan and the United States have shifted a substantial portion of their operations to China, including major portions of their research and development activities. Among these investments are those geared to the production of advanced technology products.

The combination of (a) the Chinese development of its domestic capacities and (b) the recruitment of foreign facilities is made evident by both the scale and diversity of Chinese advanced technology production and foreign direct investment. Beginning from virtually zero ATP trade 20 years ago, China exported more than $45 billion of ATP goods to the United States in 2004, creating a $36 billion U.S. deficit in such transactions between the two nations.

Specifically, as illustrated in tables 1-10, China ran an ATP surplus with the United States in biotechnology, opto-electronics, information and communications, advanced materials, weapons trade, and nuclear technology goods.

In the fields of information and communications ATP, China supplies 31 percent of all U.S. imports – a market share that promises to expand in the years immediately ahead.

The China Sphere

Because China is an emerging global power, we thought it useful to also analyze the ATP production and trade with nations geographically close to China. The nations or cities that we label "The China Sphere," as in "sphere of influence," are China itself, Hong Kong, Indonesia, Japan, Malaysia, the Philippines, Singapore, South Korea, Taiwan, Thailand and Vietnam. Others could have been added, but for this working paper, these eleven were chosen.

We also included for matters of comparison the European Union and its ATP trade with the United States.

While prior attention has focused generally on China, Japan or others in this sphere, a look at the region reveals the existence of a mighty scientific, technological and advanced manufacturing powerhouse. In 2004, the China Sphere had a $60 billion surplus in ATP trade with the United States. Of the $238 billion of ATP goods the U.S. imported last year, $140 billion came from that region versus $51 billion from the European Union.

In 2004, the United States relied on the China Sphere to provide 18 percent of its Life Science ATP imports, 60 percent of the opto-electronics, 77 percent of the information and communications ATP imports, 52 percent of the electronics, 53 percent of the flexible manufacturing ATP and 68 percent of the ATP advanced materials imported.

The "Kyosei" Factor

In Japanese "kyosei" translates as "symbiosis" or mutual prosperity. The more appropriate English translation is "dependence" because that is the result.

Japan now holds a monopolistic, technological leadership in dozens of commodity and advanced industries. Eamonn Fingleton, a financial writer living in Tokyo since 1985, revealed the extent of such U.S. dependency in his book **Blindside**.

Fingleton estimates that such monopolistic leadership is a factor in almost one-third of Japan's exports. Simply put, Japan effectively manages hundreds of U.S. industries by its oversight of key technologies. If Japan cuts the supply, the American economy stops.

Fingleton distinguishes between two key forms of intellectual property involved in manufacturing – product concepts and manufacturing processes. He notes that while American consumers are more interested in the products, the manufacturing processes are a far more important factor in the economic competition among different countries. A U.S. company may be able to design an advanced portable computer, but few American producers, if any, could manufacture it today.

According to Fingleton, the Japanese have negotiated hundreds of deals with U.S. corporations by which they will do the design, software, creative and marketing side of the business and the Japanese will perform the advanced manufacturing. The Japanese name for all this is Kyosei or the Kyosei Movement.

Now, thousands of U.S. manufactures, often unwillingly, are shifting their production to China or some other locale in the China Sphere. Inevitably, such shift gives foreign officials a certain control of those operations, whether it be export and sale limitations or forced technology sharing. In times of national emergency, shipments to the United States could be limited or restricted.

The dependency risk for the United States is that Japan will expand its technological monopolies and China will increasingly be the locale for facilities that produce advanced technology products vital to the United States.

Recommendations

The United States' economy is so large and powerful, and its scientific and technological leadership has long been so overwhelming that the nation could ignore potential technology-based flaws, traps and dangers. But that era is quickly ending. Much as before World War II, the United States faces a future of real technological and manufacturing competition.

Fortunately, unlike in the past, the United States has a strong information and data collection capacity in place. It needs to be mobilized to prepare some basic information for U.S. policymakers.

Thus, we recommend that this Commission contract with the U.S. Department of Commerce to prepare a series of special data tabulations on the U.S. ATP trade with the world. The Department has the capacity to provide detailed calculations on the nation-by-nation trade of the 500 items it defines as "Advanced Technology Products." It is likely that several vital products in that grouping are largely or entirely produced in a locale within the China Sphere. Those items need identification for the "chokehold" threats such dependency may represent.

Equally important, reportage on the overall ATP trade relationship between the United States and other nations, particularly the China Sphere, can usefully serve to educate the public about the future competitive challenges the nation faces and the need for more refined policies in areas such as the role of higher education, support for science and technology, intellectual property rules and enforcement and trade policy.

Thus, we recommend that the Commission consider issuing regular reports on the U.S. ATP trade with China, the China Sphere and the rest of the world – much as the Labor Department does on employment. Ideally, the Commerce Department could prepare this information for the Commission in a far more usable form than it is now presented to the general public. The tables contained in this report could be updated, for instance, by the Commerce Department. This and other information, combined with data about U.S. domestic production and consumption of ATP goods, would allow our leaders to constantly monitor for possible "kyosei" situations.

Summary

U.S. Trade in Advanced Technology Products With Selected Nations
Data in Thousands of U.S. Dollars
2004

Country	U.S. Exports	U.S. Imports	Net Balance	Imports as Percent of U.S. Imported ATP
China	9,401,201	45,698,158	(36,296,957)	19.1
Hong Kong	6,370,677	1,122,874	5,247,803	0.4
Indonesia	220,650	1,123,279	(903,224)	0.4
Japan	18,163,485	23,876,918	(5,713,433)	1.0
Malaysia	7,554,732	18,203,981	(10,649,249)	7.6
Philippines	4,835,973	3,809,092	1,026,881	1.5
Singapore	10,158,419	10,804,577	(646,158)	4.5
South Korea	10,341,435	17,977,823	(7,636,388)	7.5
Taiwan	9,952,165	12,810,444	(2,858,279)	5.3
Thailand	2,531,348	4,598,043	(2,066,695)	1.9
Vietnam	474,866	12,257	462,609	0.0
Sub-total	**80,004,951**	**140,037,446**	**(60,032,495)**	**58.7**
European Union	**56,168,704**	**51,345,609**	**4,823,095**	**21.5**
U.S. Total	**201,454,000**	**238,478,000**	**(37,024,000)**	**----**

Source: Calculated from ATP data, "Foreign Trade Statistics," U.S. Census Bureau, April 2005.
*U.S. Total includes balance of world.

Table 1

Biotechnology

U.S. Trade in Advanced Technology Products With Selected Nations
Data in Thousands of U.S. Dollars
2004

Country	**U.S. Exports**	**U.S. Imports**	**Net Balance**	**Imports as Percent of U.S. Imported ATP**
China	11,500	16,322	(4,822)	0.8
Hong Kong	8,922	52	8,870	0.0
Indonesia	4,893	519	4,374	0.0
Japan	259,232	19,080	240,152	0.9
Malaysia	6,801	0	6,801	0.0
Philippines	8,155	0	8,155	0.0
Singapore	5,398	120	5,278	0.0
South Korea	39,915	2,124	37,791	0.1
Taiwan	27,861	1,646	26,215	0.0
Thailand	11,092	0	11,092	0.0
Vietnam	2,165	0	2,165	0.0
Sub-total	**385,934**	**39,863**	**346,071**	**2.0**
European Union	**2,563,005**	**1,822,733**	**740,272**	**37.6**
U.S. Total*	**3,743,226**	**1,967,444**	**1,775,782**	----

Source: Calculated from ATP data, "Foreign Trade Statistics," U.S. Census Bureau, April 2005
*U.S. Total includes balance of world.

Table 2

Life Science

U.S. Trade in Advanced Technology Products With Selected Nations
Data in Thousands of U.S. Dollars
2004

Country	U.S. Exports	U.S. Imports	Net Balance	Imports as Percent of U.S. Imported ATP
China	725,295	577,527	147,768	1.7
Hong Kong	297,697	15,699	281,998	0.0
Indonesia	9,488	777	8,711	0.0
Japan	2,070,336	2,006,539	63,797	6.1
Malaysia	71,004	26,449	44,555	0.0
Philippines	28,404	13,603	14,801	0.0
Singapore	191,683	1,328,118	(1,136,435)	4.0
South Korea	386,856	109,950	276,906	0.3
Taiwan	216,366	113,402	205,064	0.3
Thailand	87,783	12,019	75,764	0.0
Vietnam	14,759	1,285	13,474	0.0
Sub-total	**4,128,075**	**4,205,368**	**(77,293)**	**18.3**
European Union	**6,282,898**	**22,892,525**	**(16,609,627)**	**69.7**
U.S. Total*	**14,515,912**	**32,799,021**	**(18,283,109)**	------

Source: Calculated from ATP data, "Foreign Trade Statistics," U.S. Census Bureau, April 2005
*U.S. Total includes balance of world.

Table 3

Opto-Electronics

U.S. Trade in Advanced Technology Products With Selected Nations
Data in Thousands of U.S. Dollars
2004

Country	**U.S. Exports**	**U.S. Imports**	**Net Balance**	**Imports as Percent of U.S. Imported ATP**
China	178,999	1,652,917	(1,473,918)	21.2
Hong Kong	86,694	11,278	75,416	0.0
Indonesia	666	78,781	(78,115)	1.0
Japan	544,786	1,624,259	(1,079,473)	20.8
Malaysia	41,174	135,659	(94,485)	1.7
Philippines	15,813	66,811	(50,998)	0.8
Singapore	183,973	123,875	60,098	1.5
South Korea	185,568	500,830	(315,262)	6.4
Taiwan	512,160	293,249	218,911	3.7
Thailand	33,445	173,054	(139,609)	2.2
Vietnam	772	472	300	0.0
Sub-total	**1,784,050**	**4,661,185**	**(2,877,135)**	**59.7**
European Union	**957,097**	**676,657**	**280,440**	**8.6**
U.S. Total*	**3,506,416**	**7,795,016**	**(4,288,600)**	**----**

Source: Calculated from ATP data, "Foreign Trade Statistics," U.S. Census Bureau, April 2005
*U.S. Total includes balance of world.

Table 4

Information & Communications

U.S. Trade in Advanced Technology Products With Selected Nations
Data in Thousands of U.S. Dollars
2004

Country	**U.S. Exports**	**U.S. Imports**	**Net Balance**	**Imports as Percent of U.S. Imported ATP**
China	2,156,378	41,380,304	(39,223,926)	31.2
Hong Kong	1,635,297	786,267	849,030	0.5
Indonesia	86,030	871,777	(785,747)	0.6
Japan	4,191,831	12,077,834	(7,886,003)	9.1
Malaysia	819,470	14,231,831	(13,412,361)	10.7
Philippines	173,724	1,368,606	(1,194,882)	1.0
Singapore	1,949,554	7,537,776	(5,588,222)	5.6
South Korea	1,220,219	12,742,782	(11,522,563)	9.6
Taiwan	1,240,459	8,077,139	(6,836,680)	6.0
Thailand	753,775	3,758,639	(3,004,864)	2.8
Vietnam	35,372	6,919	34,673	0.0
Sub-total	**14,262,109**	**102,839,874**	**(88,577,765)**	**77.1**
European Union	**15,236,472**	**7,484,779**	**7,751,693**	**5.6**
U.S. Total*	**59,210,057**	**132,538,953**	**(73,328,896)**	**----**

Source: Calculated from ATP data, "Foreign Trade Statistics," U.S. Census Bureau, April 2005
*U.S. Total includes balance of world.

Table 5

Electronics

U.S. Trade in Advanced Technology Products With Selected Nations
Data in Thousands of U.S. Dollars
2004

Country	U.S. Exports	U.S. Imports	Net Balance	Imports as Percent of U.S. Imported ATP
China	3,049,582	1,420,578	1,629,004	5.1
Hong Kong	3,888,500	282,049	3,806,451	1.0
Indonesia	42,532	162,403	(119,871)	0.5
Japan	2,245,365	2,800,813	(555,448)	10.2
Malaysia	5,549,798	3,557,489	1,992,309	12.9
Philippines	4,243,115	2,338,484	1,904,631	8.5
Singapore	3,165,140	1,493,236	1,671,904	5.4
South Korea	4,696,218	4,082,507	613,711	14.8
Taiwan	3,868,676	3,935,323	66,647	14.0
Thailand	1,365,561	615,880	749,681	2.2
Vietnam	20,721	2,871	17,850	0.0
Sub-total	**32,135,208**	**17,489,633**	**14,276,105**	**52.0**
European Union	**5,038,597**	**3,047,292**	**1,991,305**	**7.2**
U.S. Total*	**48,654,377**	**27,453,953**	**21,200,424**	------

Source: Calculated from ATP data, “Foreign Trade Statistics,” U.S. Census Bureau, April 2005.
*U.S. Total includes balance of world.

Table 6

Flexible Manufacturing

U.S. Trade in Advanced Technology Products With Selected Nations
Data in Thousands of U.S. Dollars
2004

Country	U.S. Exports	U.S. Imports	Net Balance	Imports as Percent of U.S. Imported ATP
China	1,188,238	250,021	938,217	3.2
Hong Kong	169,723	14,734	154,989	0.1
Indonesia	5,479	1,052	4,427	0.0
Japan	1,819,864	3,055,705	(1,235,841)	40.2
Malaysia	345,524	198,818	146,706	2.6
Philippines	242,781	3,002	239,779	0.0
Singapore	1,260,087	131,070	1,079,821	1.7
South Korea	1,380,817	180,266	1,249,747	2.3
Taiwan	2,229,501	199,254	2,030,247	2.6
Thailand	86,681	24,181	62,500	0.3
Vietnam	2,780	698	2082	0.0
Sub-total	**8,578,675**	**4,058,801**	**4,519,856**	**53.4**
European Union	**1,878,599**	**3,047,292**	**(1,168,693)**	**40.1**
U.S. Total*	**13,044,281**	**7,587,168**	**5,457,113**	**----**

Source: Calculated from ATP data, “Foreign Trade Statistics,” U.S. Census Bureau, April 2005.
*U.S. Total includes balance of world.

Table 7

Advanced Materials

U.S. Trade in Advanced Technology Products With Selected Nations
Data in Thousands of U.S. Dollars
2004

Country	U.S. Exports	U.S. Imports	Net Balance	Imports as Percent of U.S. Imported ATP
China	46,924	96,501	(49,577)	5.3
Hong Kong	51,360	1,520	49840	0.0
Indonesia	3,631	5,444	(1,813)	0.3
Japan	159,183	841,336	(682,153)	46.8
Malaysia	20,477	34,929	(14,452)	1.9
Philippines	710	652	58	0.0
Singapore	62,960	48,295	14,665	2.6
South Korea	68,989	118,883	(49,894)	6.6
Taiwan	1,597,728	57,797	1,539,931	3.2
Thailand	2,990	12,317	(9,327)	0.6
Vietnam	2,309	12	2,297	0.0
Sub-total	**2,017,261**	**1,217,686**	**799,575**	**67.8**
European Union	**339,741**	**392,047**	**(52,306)**	**21.8**
U.S. Total*	**1,137,185**	**1,794,374**	**(657,189)**	**----**

Source: Calculated from ATP data, "Foreign Trade Statistics," U.S. Census Bureau, April 2005
*U.S. Total includes balance of world.

Table 8

Aerospace

U.S. Trade in Advanced Technology Products With Selected Nations
Data in Thousands of U.S. Dollars
2004

Country	U.S. Exports	U.S. Imports	Net Balance	**Imports as Percent of ATP Imported**
China	1,987,038	172,015	1,815,023	0.7
Hong Kong	213,965	10,379	203,586	0.0
Indonesia	65,814	2,515	63,299	0.0
Japan	5,872,392	1,405,074	4,467,318	5.8
Malaysia	693,321	18,566	674,755	0.0
Philippines	120,373	14,265	106,108	0.0
Singapore	3,298,836	141,575	3,787,261	0.5
South Korea	2,037,263	233,301	1,803,962	0.9
Taiwan	1,597,728	110,617	1,487,111	0.4
Thailand	186,937	12,317	174,620	0.0
Vietnam	393,789	0	393,789	0.0
Sub-total	**16,467,456**	**2,120,624**	**14,346,832**	**8.8**
European Union	**22,937,849**	**11,351,774**	**11,586,075**	**47.6**
U.S. Total*	**54,377,329**	**23,832,804**	**30,544,525**	**----**

Source: Calculated from ATP data, “Foreign Trade Statistics,” U.S. Census Bureau, April 2005
*U.S. Total includes balance of world.

Table 9

Weapons

U.S. Trade in Advanced Technology Products With Selected Nations
Data in Thousands of U.S. Dollars
2004

Country	U.S. Exports	U.S. Imports	Net Balance	Imports as Percent of U.S. Imported ATP
China	47,900	57,878	(9,978)	10.7
Hong Kong	14,480	870	13,610	0.0
Indonesia	2,103	6	2,079	0.0
Japan	262,811	12,312	250,499	2.2
Malaysia	6,140	208	5,932	0.0
Philippines	2,689	3,627	(938)	0.6
Singapore	38,332	405	37,927	0.0
South Korea	109,243	6,988	102,255	1.2
Taiwan	42,773	22,010	20,763	4.0
Thailand	2,149	79	2,070	0.0
Vietnam	1,832	0	1,832	0.0
Sub-total	**530,452**	**104,383**	**426,069**	**19.3**
European Union	**657,247**	**203,075**	**454,172**	**37.6**
U.S. Total*	**1,852,112**	**539,655**	**1,312,457**	**----**

Source: Calculated from ATP data, "Foreign Trade Statistics," U.S. Census Bureau, April 2005
*U.S. Total includes balance of world.

Table 10

Nuclear Technology

U.S. Trade in Advanced Technology Products With Selected Nations
Data in Thousands of U.S. Dollars
2004

Country	**U.S. Exports**	**U.S. Imports**	**Net Balance**	**Imports as Percent of U.S. Imported ATP**
China	9,258	74,097	(64,839)	3.4
Hong Kong	4,040	26	4,014	0.0
Indonesia	15	6	9	0.0
Japan	737,687	33,966	703,721	1.5
Malaysia	1,023	32	991	0.0
Philippines	207	42	165	0.0
Singapore	2,455	108	2,347	0.0
South Korea	216,347	191	216,156	0.0
Taiwan	137,095	6	137,092	0.0
Thailand	936	198	738	0.0
Vietnam	368	0	368	0.0
Sub-total	**1,109,431**	**108,672**	**1,000,759**	**5.0**
European Union	**277,199**	**1,154,213**	**(877,014)**	**53.1**
U.S. Total*	**1,503,127**	**2,169,868**	**(666,741)**	**----**

Source: Calculated from ATP data, “Foreign Trade Statistics,” U.S. Census Bureau, April 2005
*U.S. Total includes balance of world.