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**U.S. Exports of Advanced Technology Products
to China**

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U.S. EXPORTS OF ADVANCED TECHNOLOGY PRODUCTS TO CHINA

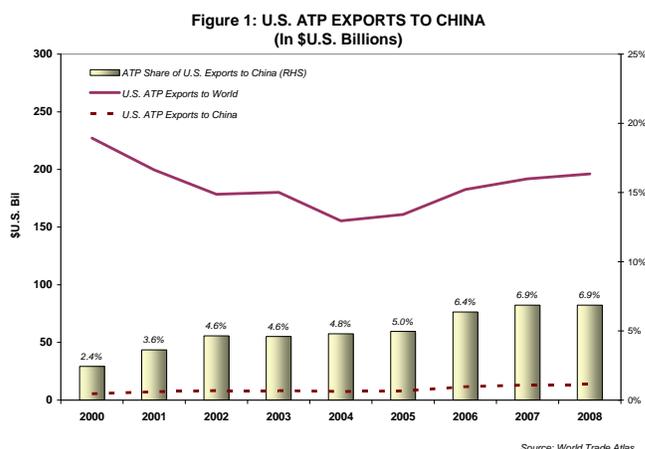
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This briefing provides an overview of the magnitude and composition of recent U.S. exports of advanced technology products (ATPs) to China, and shows how such exports are differentiated from U.S. ATP exports to the rest of the world (ROW). It demonstrates that U.S. ATP exports to China have expanded rapidly in recent years, becoming increasingly concentrated in electronic products (e.g., semiconductors), intended for integration into Chinese manufacturing supply lines. An accompanying briefing on Chinese ATP exports to the United States provides complementary findings, by applying similar ATP definitions to Chinese export data.¹

Definition & Data: “Advanced technology products” simply denotes high-technology goods. For statistical purposes, this briefing employs the U.S. Census Bureau definition, given that this definition broadly attempts to capture innovation through a dynamic approach to data classification, does not appear to be associated with policy objectives, and lacks a competing international standard.²

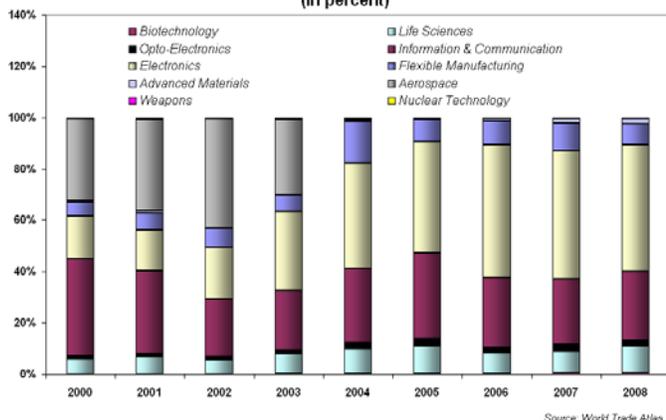
Trends: U.S. ATP exports to China have grown steadily since 2000, increasing by an estimated annual 13% y/y.³ U.S. ATP exports to China have also outpaced U.S. ATP global exports (Figure 1), reflecting the growing prominence of China’s market and processing platform.

Electronic products constitute a large and growing share of U.S. ATP exports to China (Figure 2). Semiconductors dominate this category, representing about 90% of U.S. electronic ATP exports to China in 2008. Information & communication goods have also been a prominent type of U.S. ATP exports to China. Machine parts, voice and data imaging machines and parts, processing and phone parts make up the products in that category grouping.



Source: World Trade Atlas

Figure 2: COMPOSITION OF U.S. ATP EXPORTS TO CHINA (In percent)



Source: World Trade Atlas

Taken together, such products can be broadly considered intermediary goods that the U.S. ships to China as components for final assembly of other products. This prominent trade phenomenon represents an illustrative example of the trend towards the international fragmentation of production, where different countries, such as the United States, specialize in the production of various segments of global supply chains based on comparative advantage.⁴

¹ See Hammer, Koopman, and Martinez, “Chinese Exports of ATP to the United States” (2009).
² See Ferrantino, Koopman, Wang, & Yinug, “Classification and Statistical Reconciliation of Trade in ATP” (2008).
³ This is an estimate, since regular modifications of ATP definitions impede more precise calculations.
⁴ See Dean, Ferrantino, and Wang, “Measuring the Vertical Specialization in Chinese Trade” (2007).

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Distinctive Features of U.S. ATP Exports to China. U.S. ATP exports to China assume a different profile from U.S. ATP exports to the ROW – particularly in two sectors: electronics, and information & communication. As seen in Figure 3, electronics accounted for roughly half of U.S. ATP exports to China, while they only constituted a quarter of U.S. exports to the ROW. This reflects the greater specialization of U.S. ATP exports to China in those categories. In value terms, U.S. electronic (most of which are semiconductors) exports to China have increased from \$922 million in 2000 to \$6.6 billion in 2008.

Relative to U.S. exports to China, U.S. exports to the ROW have been relatively concentrated in information & communication products, biotechnology products and aerospace products. Figure 4 captures differences in export shares between U.S. ATP exports to China and to the ROW since the WTO accession era. In the absence of export specialization, we would expect differences in export shares to be minimal and converge toward zero in time. While true for many of the subcategories, the information and communication, biotechnology, and aerospace sectors present unique stories.

Information & Communication: The U.S. has been more specialized in the exportation of information & communication products to the ROW relative to China. This is largely attributable to growing shipments of computers to the ROW that are not being proportionally exported to China. However, more recent surges in U.S. exports of computer components such as hard drives to China have more than offset these trends, which explain the convergence in U.S. information & communication exports to China and the ROW since 2001.

Biotechnology: The United States has also become increasingly specialized in the exportation of biotechnology products to the ROW relative to China. This is primarily attributable to the steady growth in U.S. exports of blood fractions and human vaccines to the ROW, which have remained nominal in China. The diverging export specialization profiles suggest a possible trade opportunity for U.S. exporters. Weak Chinese demand for such products does not appear to explain such trends, given growing competition in China from German and other European companies, and growing Chinese demand for U.S. high-technology health care products in the related medical device sector (which is subsumed in the “life sciences” category above).

Aerospace: U.S. aerospace exports to China have also been proportionately smaller than such exports to the ROW. This is largely attributable to lower shares of U.S. airplane exports to China relative to the ROW in the considered period. Although this may represent an export opportunity for U.S. companies, the irregular nature of airplane sales and gradual convergence towards the export profile of U.S. airplane sales to the ROW, inhibit broader conclusions.

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Figure 3: COMPOSITION OF U.S. ATP EXPORTS TO CHINA AND ROW BY SECTOR, 2008

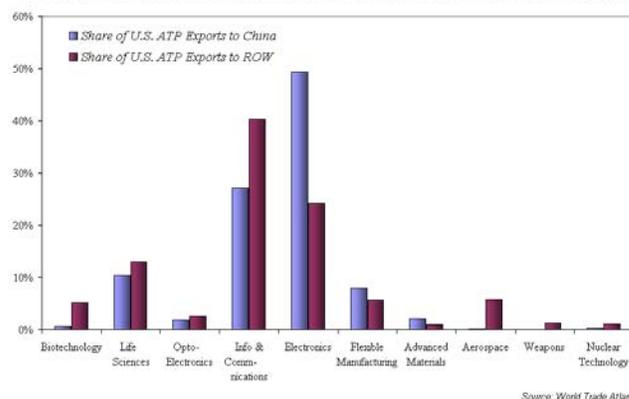


Figure 4: DIFFERENCE B/W U.S. ATP EXPORT SHARE TO CHINA AND ROW, 2001-08

