What's the Difference?—Comparing U.S. and Chinese Trade Data

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Summary

The size of the U.S. bilateral trade deficit with China has been and continues to be an important issue in bilateral trade relations. Some Members of Congress view the deficit as a sign of unfair economic policies in China, and have introduced legislation seeking to redress the perceived competitive disadvantage China's policies have created for U.S. exporters.

There is a large and growing difference between the official trade statistics released by the United States and the People's Republic of China. According to the United States, the 2014 bilateral trade deficit with China was $342.6 billion. According to China, its trade surplus with the United States was $237.0 billion—$105.6 billion less.

This paper examines the differences in the trade data from the two nations in two ways. First, it compares the trade figures at the two digit level using the Harmonized System to discern any patterns in the discrepancies between the U.S. and Chinese data. This comparison reveals that over 90% of the difference in the value of China's exports to the United States in 2014 was attributable to five types of goods. Those five types of goods, in order of the size of the discrepancy, were electrical machinery; machinery; toys and sporting goods; footwear; and leather articles.

The second approach to examining the differing trade data involves a review of the existing literature on the technical and non-technical sources of the trade data discrepancies. The literature reveals that the main sources of the discrepancies are differences in the list value of shipments when they leave China and when they enter the United States, and differing attributions of origin and destination of Chinese exports that are transshipped through a third location (such as Hong Kong) before arriving in the United States.

Because of the differences in the official bilateral merchandise trade data, the U.S.-China Joint Commission on Commerce and Trade (JCCT) established a statistical working group in 2004. The working group has released two reconciliation studies (in 2009 and 2012) to identify the causes of the statistical discrepancies. The adjustments contained in the two studies are not meant to imply errors in the official statistics of either country.

This report is updated annually, after the release of official trade data by China and the United States.

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Introduction

The U.S. merchandise trade deficit with the People's Republic of China (China) remains a major source of bilateral tension. Members of Congress and other U.S. government officials often point to the bilateral trade imbalance as evidence that China is not competing fairly in the global market.[1]

Debate over this trade deficit is hampered by disagreement between the two countries on how large the deficit actually is. According to official U.S. figures, China has surpassed Canada as the largest supplier of U.S. imports, running up a bilateral trade surplus in 2014 of $342.6 billion. However, according to official Chinese figures, China's trade surplus with the United States in 2013 was only $237.0 billion—$105.6 billion less than the U.S. figure (see **Table 1**).

The size of the bilateral trade deficit also has been an issue in proposed legislation addressing trade relations with China. For example, the Emergency China Trade Act (H.R. 2909) introduced during the 112th Congress would have revoked normal trade relations (NTR) status, also known as most favored nation (MFN) trade status, for China and required the President to negotiate a trade agreement with China that would "achieve and maintain balanced trade" between the two nations within four years of the bill's enactment. As of the time this report was released, no similar legislation had been introduced by the 114th Congress.

Comparison of U.S. and Chinese Trade Data

Table 1 lists the official trade statistics from the United States and China for the years 2001 to 2014, using official trade data.[2] According to both countries, the U.S. trade deficit with China is large and growing. Where the two sides differ is how big the deficit is and how fast it has grown. From the U.S. perspective, its bilateral trade deficit with China more than quadrupled in value over the last 13 years, from just over $83 billion in 2001 to over $342 billion in 2014. However, from the Chinese view, its bilateral trade surplus with the United States increased eight-fold, from about $28 billion in 2001 to more than $237 billion in 2014.

Table 1 reveals that most of the discrepancy between the trade data from the two nations stems from significantly different figures for China's exports to the United States. While the difference between the U.S. and Chinese figures for U.S. exports to China was generally less than $10 billion until 2011, China's figures for its exports to the United States differed by $48.0 billion in 2001 and $96.0 billion in 2014. However, the discrepancy between U.S. export and Chinese import figures for bilateral trade has been rising in recent years.

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[1] Both China and the United States have substantial trade surpluses with some trading partners and trade deficits with other trading partners. Also, the phenomena of significant difference in the trade figures between two trading partners is not uncommon. The size of the differential between China and the United States is particularly large.

[2] China values its exports using the "free on board," or F.O.B. method and its imports using the "cost, insurance, and freight," or C.I.F. method. The United States values its exports using the "freight along side," or F.A.S. method and its imports using the "Customs value" method. The implications of the different evaluation methods are discussed later in the report.

Table 1. U.S. and Chinese Trade Figures, 2001-2014

(billion U.S. dollars)

Year	U.S. Trade Figures			Chinese Trade Figures		
	Exports to China (F.A.S.)	Imports from China (C.V.)	Trade Balance	Exports to United States (F.O.B.)	Imports from United States (C.I.F.)	Trade Balance
2001	19.235	102.280	-83.045	54.277	26.204	28.073
2002	22.053	125.168	-103.115	69.959	27.228	42.731
2003	28.418	152.379	-123.961	92.510	33.883	58.627
2004	34.721	196.699	-161.978	124.973	44.653	80.320
2005	41.837	243.462	-201.625	162.939	48.735	114.204
2006	55.224	287.773	-232.549	203.516	59.222	144.294
2007	65.238	321.508	-256.270	232.761	69.861	162.900
2008	71.457	337.790	-266.333	252.327	81.486	170.841
2009	69.576	296.402	-226.826	220.706	77.433	143.273
2010	91.878	364.944	-273.066	283.184	101.310	181.873
2011	103.879	399.335	-295.457	324.300	118.121	206.180
2012	110.590	425.644	-315.053	351.884	127.755	224.129
2013	122.016	440.434	-318.417	368.349	145.926	222.423
2014	124.024	466.656	-342.633	396.082	159.036	237.046

Source: China's General Administration of Customs, *Global Trade Atlas*, U.S. International Trade Commission.

Note: China values its exports using the "free on board," or F.O.B. method and its imports using the "cost, insurance, and freight," or C.I.F. method. The United States values its exports using the "free alongside," or F.A.S. method and its imports using the "Customs value" (C.V.) method.

Delving into the Data: Examining HS Code

The most widely used international system for classifying traded goods is the Harmonized Commodity Description and Coding System, commonly referred to as the Harmonized System or simply HS Code. Every product traded is classified into a 10-digit code. The first two digits of the products code correspond to one of the 98 HS "chapters," that classify all goods in general categories. The U.S. International Trade Commission maintains the U.S. version of the HS Code, officially called the "Harmonized Tariff Schedule of the United States," or HTS. Since both the United States and China use the same HS chapters, it is possible to compare the trade data at this level.

Table 2 lists *in rank order* the top five HS chapters according to the difference between the figures for U.S. imports from China and Chinese exports to the United States for 2014. In all five cases, the U.S. import figures exceeded China's export figures. The top five HS chapters—leather articles (42), footwear (64), machinery (84), electrical machinery (85), and toys and sporting goods (95)—account for over 90% of the difference between the U.S. and Chinese figures.

All five of these chapters also ranked high according to both countries in terms of their absolute value of trade. With the exception of leather articles, the other four were among the top five ranked chapters in terms of the value of imports from China, according to the United States, and accounted for 60.1% of the total value of imports in 2014. Four of the sources of discrepancies—electrical machinery, footwear, machinery, and toys and sporting goods—were among the top 10 sources of exports to the United States, according to China.

Table 2. Top Five Discrepancies for U.S. Imports from China, 2014

(billion dollars)

HS Chapter	U.S. Imports from China (U.S. data, using C.V.)	China's Exports to U.S. (China data, using F.O.B.)	Difference
Electrical Machinery (85)	127.086	92.063	35.022
Machinery (84)	105.255	90.796	14.458
Toys and Sporting Goods (95)	22.597	13.195	9.402
Footwear (64)	17.066	13.859	3.218
Leather Articles (42)	8.537	6.838	1.699

Source: *Global Trade Atlas*, U.S. International Trade Commission.

On the other side of the trade equation, there were five chapters where China's imports exceeded U.S. exports by more than $1 billion, and no chapters where U.S. exports exceeded Chinese imports by more than $1 billion. China's officially reported imports from the United States of miscellaneous grains, seeds and fruits (12); organic chemicals (29); plastic (39); machinery (84); electrical machinery (85); and optical and medical equipment (90) were more than $1 billion greater than the official U.S. exports to China.

It is also worth noting that on both sides of the trade balance equation, two of the greatest differences in the official trade statistics of the two nations occurred in the same HS chapters—machinery (84) and electrical machinery (85). The discrepancies between the official trade statistics for these two types of goods have been consistently large for flows in both directions since 2001, indicating a systemic difference in the evaluation of the bilateral trade of these goods.

Explaining the Differences: Literature Summary

The question as to why China's official statistics are routinely much lower in value than the official U.S. trade statistics has been and continues to be the subject of analysis by scholars, government officials, and other interested parties. The following is a short review of some of the key explanations provided in this literature, categorized into "technical" and "non-technical" explanations. "Technical" explanations refer to procedural or administrative causes for the discrepancies; "non-technical" explanations include causes arising from non-procedural or non-administrative sources.

Technical Explanations

Official Definitions of Exports and Imports

In its official statistics, China evaluates exports using the more commonly used "free on board" (F.O.B.) terms,[3] and evaluates imports using "cost, insurance, and freight" (C.I.F.) terms.[4] The United States, however, reports its exports using "free alongside" (F.A.S.) terms[5] and values imports using a customs definition.[6] As a result, official U.S. trade data place a lower value on both U.S. exports to China and imports from China than the official Chinese data. In addition, direct comparisons of the official U.S. and Chinese trade balances reported in the media are potentially misleading because the goods trades are being evaluated using different methods. For more accurate direct comparisons, the trade data for both nations should be determined using the same terms, such as the general international practice of F.O.B. for exports and C.I.F. for imports.

Definition of Territory

The United States includes Puerto Rico and the U.S. Virgin Islands in its trade data; China does not. China treats Puerto Rico and the U.S. Virgin Islands as separate customs territories. According to most studies, this is a comparatively minor source of difference in the trade figures.

Timing

Because of the distance between China and the United States, it takes time between the export of the goods from China and their import in the United States. Goods in transit at the end of the year are counted as exports by China, but not as imports by the United States. However, the lag between shipments occurs at the beginning and the end of the year, thus minimizing the effect of timing on the overall trade balance difference.

Declaration of Country of Origin

The current practice of U.S. Customs is to rely on the declaration of the importer to determine the country of origin. Some analysts believe that importers are misidentifying a significant amount of imports as Chinese.

Exchange Rates

Because China's currency, the renminbi, is allowed to fluctuate within a small range, the exchange rate between the renminbi and the U.S. dollar changes over time.[7] The value of a

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[3] "Free on board" includes the cost of getting the goods to port and loading them onto the ship; sometimes also referred to as "freight on board."

[4] The C.I.F. definition adds the cost of insurance and shipping (freight) to the value of the imported goods.

[5] Unlike F.O.B., F.A.S. does not include the costs of clearing the goods for export and loading the goods. As a result, the FAS value of a shipment is less than its FOB value.

[6] The customs definition only includes the actual cost of the goods; it does not include the cost of insurance and freight. As a result the customs value of a shipment is less than its CIF value.

[7] Since June 2010, China has maintained what it calls a "managed floating exchange rate regime" that allows its (continued...)

shipment may change between the date it leaves China and the date it arrives in the United States due to changes in the exchange rate. Although the renminbi has appreciated against the U.S. dollar over the last few years, exchange rate changes are not considered a major factor in the discrepancy in the trade figures.

Non-Technical Explanations

Value Differences in Direct Trade

According to two joint China-U.S. studies (see "Joint China-U.S. Studies of Discrepancies" below), about half of the merchandise trade discrepancy between U.S. imports from China and Chinese exports to the United States—or eastbound trade—is attributable to changes in the values of the export price in China and the import value in the United States for goods shipped directly between the two countries. Part of the difference may be caused by mid-shipment transfers in ownership resulting in the new owner adding a markup in the price. Another possible explanation is intentional under-invoicing of exports (see below).

Under-Invoicing

Some analysts believe that Chinese importers may intentionally under-value imports from the United States to lower the import tariff due on the shipment. In addition, some analysts believe that Chinese exporters may intentionally under-value exports to the United States to maximize their net proceeds overseas for various tax and regulatory reasons. Due to the "hidden nature" of under-invoicing, it is difficult to assess how much this may be contributing to the differences in the trade data.

Intermediation

Although estimates vary, most analysts agree that a large portion of China's exports arrive in the United States via a third party, Hong Kong being the most commonly identified location.[8] The intermediation of shipments raises two sources of discrepancies. First, the exporter from China may not know that the goods eventually will be shipped to the United States, and may therefore list the third party (e.g., Hong Kong) as its destination, but U.S. Customs may list the source of shipment as being China. Second, the value of the shipment may change—with or without any actual change in the goods—between its arrival in and departure from the third location. The joint China-U.S. study of discrepancies in merchandise trade statistics determined that value differences account for about half of the differences between Chinese and U.S. trade statistics.

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currency to fluctuate within a restricted range on a daily basis. For a more detailed discussion of China's exchange rate policy, see CRS Report RS21625, *China's Currency Policy: An Analysis of the Economic Issues*, by Wayne M. Morrison and Marc Labonte.

[8] In a 2006 study, Fung, Lau and Xiong reduced the difference between the U.S. and Chinese trade deficit for 2005 from $87.4 billion to $26.5 billion by adjusting the trade data for Hong Kong re-exports. In a 2005 study, Tong estimated that adjustments for re-exports resulted in a $22 billion reduction in the trade balance difference for 2003. In an August 2013 study, Hammer, Jones, and Wang calculated that intermediation by third countries other than Hong Kong accounted for much of the remaining differences between Chinese and U.S. trade statistics after adjustments were made for valuation systems. See selected bibliography at end of report for complete citations of these studies.

Joint China-U.S. Studies of Discrepancies

In April 2004, the 15th JCCT established a statistical working group, with representatives of China's Ministry of Commerce and General Administration of Customs, and the U.S. Department of Commerce and Office of the USTR. The initial focus of the working group was to examine the "unusually large and growing statistical discrepancies in the bilateral merchandise trade data officially published by [the] two countries."[9] It was subsequently decided to conduct a reconciliation study to determine the causes of the discrepancies. However, it was agreed that the results of the study were not intended to imply errors in either nation's statistical systems and/or methods of calculating official merchandise trade data.

Under the auspices of the U.S.-China Joint Commission on Commerce and Trade (JCCT), China's Ministry of Commerce and the U.S. Department of Commerce and Office of the U.S. Trade Representative (USTR) have conducted two studies to determine the causes of the statistical discrepancies in the official merchandise trade data reported by both nations. The first report was released in October 2009; the second in December 2012.

The main conclusions of the two studies are largely the same. The greatest discrepancy is in the "eastbound trade" data, which accounts for 80%-90% of the overall difference in annual trade balance. Roughly half of the "eastbound trade" data discrepancy can be attributed to goods that "leave China, enter the commerce of intermediate countries or regions, and then [are] re-exported to the United States."[10]

Implications for Congress

The release of the official U.S. annual trade figures has been frequently followed by expressions of concern about the size of U.S. bilateral trade deficit with China. According to official U.S. trade figures, the bilateral trade deficit with China in 2014 was more than four times the size of the next largest bilateral trade deficit (Germany, $73.7 billion) and greater than the sum of the next seven largest bilateral trade deficits.[11]

China, however, does not accept the accuracy of the official U.S. figure for the Sino-U.S. trade balance. In 2007, China's Foreign Ministry spokeswoman, Jiang Yu, said, "imbalances in China-U.S. trade are an objective fact, but this is also related to the two sides' different statistical methods."[12]

Also, when considering means or actions designed to reduce the U.S. trade deficit with China, it is useful to know which goods are the main sources of discrepancies between Chinese and U.S. trade figures, and how important they are in the overall trade flow between the two nations, so

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[9] *Report of the Statistical Discrepancy of Merchandise Trade Between the United States and China*, Hangzhou, China, October 2009.

[10] Ibid.

[11] The next seven largest bilateral trade deficits in 2014, in order, were Germany—$73.7 billion; Japan—$67.0 billion; Mexico—$53.8 billion; Canada—$33.9 billion; Saudi Arabia—$28.4 billion; Ireland—$ 26.2 billion; and South Korea—$25.1 billion; for a total of $333.2 billion—$9.4 billion less than that of China.

[12] *Washington Trade Daily*, February 16, 2007.

that "trade remedies" may be better targeted at the perceived problem. According to this report, the main problems appear to be in the trade figures for electrical machinery, machinery, and toys and sporting goods.

For those causes of the differences resulting from data compilation—such as misidentification of value or country of origin of imports—Congress may choose through oversight or other means to encourage the responsible U.S. agency to examine and adjust its procedures for compiling trade data. In addition, Congress may decide to press or otherwise encourage China's customs services to conduct a similar review of its trade compilation procedures. In other cases, more detailed analysis of the trade data may be helpful in persuading China to amend or alter its laws, regulations, and policies pertaining to the import or export of goods to the United States.

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