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

Updated May 20, 2020
Summary

The size of the U.S. bilateral trade deficit with the People’s Republic of China (China) has been and continues to be an important issue in bilateral trade relations. President Trump and some Members of Congress view the deficit as a sign of unfair economic policies in China. In the 116th Congress, the Fair Trade with China Enforcement Act (H.R. 704 and S. 2) and the United States Reciprocal Trade Act (H.R. 764) mention U.S. trade deficits as a reason for the proposed legislation.

The escalation of the Sino-U.S. trade tensions and both sides’ imposition of tariffs on one another's trade since spring 2018 contributed to a significant decline in bilateral merchandise trade in 2019, and the corresponding merchandise trade balance. According to the U.S. International Trade Commission, the 2019 bilateral merchandise trade deficit with China was $345.6 billion, down from $419.2 billion in 2018. According to China’s General Administration of Customs, China’s trade surplus with the United States in 2019 was $295.5 billion, a decline of $27.9 billion from 2018. The difference between the officially reported trade balances of the two nations was less than $55 billion for the first time in 20 years.

This report examines the differences in the trade data reported by the Chinese and U.S. governments in two ways. First, it compares the trade figures using the Harmonized Commodity Description and Coding System (Harmonized System) to discern any patterns in the discrepancies between the U.S. and Chinese data. This comparison reveals that 96% of the difference in the value of China’s exports to the United States in 2019 arises primarily from differences in the reported values for four types of goods. Those four types of goods, in order of the size of the discrepancy, were electrical machinery, toys and sporting goods, machinery, and footwear; all four have been major sources of the discrepancy for over a decade.

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 leading 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.

In light 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 released two reconciliation studies in 2009 and 2012 to identify the causes of the statistical discrepancies. The JCCT has not met since May 2016.

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. Some Members of Congress and the Trump Administration point to the bilateral trade imbalance as evidence that China is not competing fairly in the global market.

On March 31, 2017, President Trump issued Executive Order 13786, which states:

Within 90 days of the date of this order, the Secretary of Commerce and the United States Trade Representative (USTR), in consultation with the Secretaries of State, the Treasury, Defense, Agriculture, and Homeland Security, and the heads of any other executive departments or agencies with relevant expertise, as determined by the Secretary of Commerce and the USTR, shall prepare and submit to the President an Omnibus Report on Significant Trade Deficits (Report).

The report was reportedly submitted to the White House for review in June 2017, but the contents of the report have not been made public.

President Trump also issued Executive Order 13796, “Addressing Trade Agreement Violations and Abuses,” on April 29, 2017, which, among other things, requires the Secretary of Commerce and the USTR to “conduct comprehensive performance reviews” of “all trade relations with countries governed by the rules of the World Trade Organization with which the United States does not have free trade agreements but with which the United States runs significant trade deficits in goods.” China is one such country.

In late 2017, China and the United States entered into a bilateral trade dispute that subsequently saw both nations impose higher tariffs on goods imported from the other nation. Since spring 2018, the United States has imposed increased tariffs on more than $360 billion of goods imported from China, and China has imposed increased tariffs on more than $110 billion of goods imported from the United States. According to some economists, the higher tariffs resulted in a significant amount of trade diversion away from direct Sino-U.S. bilateral trade flows toward an increase in merchandise trade with other nations, such as Mexico and Vietnam.
official trade statistics of both countries, the U.S. merchandise trade deficit with China increased in 2017 and 2018, but fell in 2019. The Sino-U.S. trade dispute was a contributing factor in a 15% decline in total bilateral merchandise trade between 2018 and 2019, according to both official Chinese and U.S. trade statistics. The trade dispute also was a contributing factor in the reduction of the bilateral trade balance by 9% and 18%, according to Chinese and U.S. trade figures respectively.

**Comparison of U.S. and Chinese Merchandise Trade Data**

Table 1 lists the official trade statistics from the United States and China for the years 2001 to 2019, using both countries’ official trade data.¹ From the U.S. perspective, its bilateral trade deficit with China more than quadrupled in value over the last 19 years, from just over $83 billion in 2001 to over $345 billion in 2019. However, from the Chinese view, its bilateral trade surplus with the United States increased more than 10-fold, from about $28 billion in 2001 to more than $295 billion in 2019. For the first time in 19 years, the difference between the official merchandise trade balances of the two nations is just over $50 billion.

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. China’s figures for its exports to the United States differed from U.S. figures by $48.3 billion in 2001 and $34.5 billion in 2019. The difference between the U.S. and Chinese figures for U.S. exports to China was generally less than $10 billion until 2011, after which the discrepancy rose until 2019, when it returned to below $10 billion.

<table>
<thead>
<tr>
<th>Year</th>
<th>U.S. Trade Figures</th>
<th>Chinese Trade Figures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exports to China (F.A.S.)</td>
<td>Imports from China (C.V.)</td>
</tr>
<tr>
<td>2002</td>
<td>22.317</td>
<td>125.498</td>
</tr>
<tr>
<td>2003</td>
<td>28.646</td>
<td>152.974</td>
</tr>
<tr>
<td>2004</td>
<td>34.833</td>
<td>197.456</td>
</tr>
<tr>
<td>2005</td>
<td>41.874</td>
<td>244.699</td>
</tr>
<tr>
<td>2006</td>
<td>54.813</td>
<td>289.246</td>
</tr>
<tr>
<td>2007</td>
<td>64.313</td>
<td>322.975</td>
</tr>
<tr>
<td>2008</td>
<td>71.346</td>
<td>339.581</td>
</tr>
</tbody>
</table>

¹ 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 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.
## What’s the Difference?—Comparing U.S. and Chinese Trade Data

### U.S. Trade Figures vs. Chinese Trade Figures

<table>
<thead>
<tr>
<th>Year</th>
<th>U.S. Trade Figures</th>
<th>Chinese Trade Figures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Exports to China (F.A.S.)</td>
<td>Imports from China (C.V.)</td>
</tr>
<tr>
<td>2009</td>
<td>70.636</td>
<td>297.872</td>
</tr>
<tr>
<td>2010</td>
<td>93.059</td>
<td>366.126</td>
</tr>
<tr>
<td>2011</td>
<td>105.445</td>
<td>400.632</td>
</tr>
<tr>
<td>2012</td>
<td>111.855</td>
<td>426.792</td>
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<tr>
<td>2013</td>
<td>122.827</td>
<td>441.621</td>
</tr>
<tr>
<td>2014</td>
<td>124.747</td>
<td>467.940</td>
</tr>
<tr>
<td>2016</td>
<td>115.775</td>
<td>462.813</td>
</tr>
<tr>
<td>2017</td>
<td>130.370</td>
<td>505.597</td>
</tr>
<tr>
<td>2018</td>
<td>120.341</td>
<td>539.503</td>
</tr>
<tr>
<td>2019</td>
<td>106.627</td>
<td>452.243</td>
</tr>
</tbody>
</table>

**Source:** China’s General Administration of Customs, Global Trade Atlas, U.S. Bureau of Economic Analysis.

**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. The first two digits of the product’s 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 four HS chapters where the value of U.S. imports from China exceeds the value of Chinese exports to the United States for 2019. The top four HS chapters—footwear (64), machinery (84), electrical machinery (85), and toys and sporting goods (95)—account for more than 96% of the difference between the U.S. and Chinese figures for U.S. imports from China (or Chinese exports to the United States).

All four of these chapters also ranked high according to both countries in terms of their absolute value of trade. Machinery (84), electrical machinery (85), and toys and sporting goods (95) were among the top five ranked chapters in terms of the value of imports from China, according to the United States; footwear (64) ranked 8th. The four chapters combined accounted for 56.7% of the total value of imports in 2019. Machinery (84), electrical machinery (85), and toys and sporting goods (95) were among the top five sources of exports to the United States, according to China, and accounted for 50.7% of the total value of exports in 2019.
# What’s the Difference?—Comparing U.S. and Chinese Trade Data

## Table 2. Top Four Discrepancies for U.S. Imports from China, 2019

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Electrical Machinery</td>
<td>125.4</td>
<td>106.2</td>
<td>19.2</td>
</tr>
<tr>
<td>Toys and Sporting Goods</td>
<td>25.4</td>
<td>19.1</td>
<td>6.3</td>
</tr>
<tr>
<td>Machinery (84)</td>
<td>92.0</td>
<td>86.5</td>
<td>5.5</td>
</tr>
<tr>
<td>Footwear (64)</td>
<td>13.4</td>
<td>11.5</td>
<td>1.9</td>
</tr>
</tbody>
</table>

**Source:** China Customs, U.S. International Trade Commission.

In addition, China’s export value for four chapters exceeded U.S. import value by more than $1 billion (in order): knit apparel (61) - $3.418 billion; woven apparel (62) - $1.402 billion; and railway equipment (86) - $1.138 billion; and furniture and bedding (94) - $1.053 billion.

On the other side of the trade equation, there were 5 chapters where China’s imports exceeded U.S. exports by more than $1 billion: plastic (39); machinery (84); electrical machinery (85); non-railway vehicles (87); and optical and medical equipment (90). In two chapters—miscellaneous grains, seeds, and fruit (12); and railway equipment (86)—U.S. exports exceeded Chinese imports by more than $1 billion.

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 trade 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. Nor is the issue unique to the United States; Canada also reports bilateral trade statistics that differ significantly from China’s reported figures, and has investigated the reasons for those differences.10

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.

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10 For example, the Canada-China bilateral merchandise trade balance for 2016 differed by $23.8 billion ($32.8 billion trade deficit according to Canada; $9.0 billion trade surplus according to China). In January 2016, Canada requested that the two nations conduct a joint study on the differences or asymmetries of their trade statistics. For more about that study, see China-Canada Joint Working Group on Trade Statistics Reconciliation, *Comparing Canada’s and China’s Bilateral Trade Data*, August 29, 2018, at https://www150.statcan.gc.ca/n1/pub/13-605-x/2018001/article/54962-eng.htm.
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,\(^{11}\) and evaluates imports using “cost, insurance, and freight” (C.I.F.) terms.\(^{12}\) The use of F.O.B. for exports and C.I.F. for imports is a common, but not universal, international practice.\(^{13}\) The United States, however, reports its exports using “free alongside” (F.A.S.) terms\(^{14}\) and values imports using a customs definition.\(^{15}\) 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 evaluated using the same terms. According to the World Bank, the difference between the F.O.B. value and the C.I.F. value may vary between 10% and 20%.

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. A standard shipping container may take 13-40 days to travel between the two nations. 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.

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\(^{11}\) “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.”

\(^{12}\) The C.I.F. definition adds the cost of insurance and shipping (freight) to the value of the imported goods.


\(^{14}\) 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.

\(^{15}\) 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 C.I.F. value. The U.S. Census Bureau does release import data using the C.I.F. definition, but like the Bureau of Economic Analysis, reports exports using the F.A.S. definition.
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 U.S. importers are misidentifying a significant amount of imports from Hong Kong as coming from China.

Exchange Rates

Most of U.S. trade with China is denominated in U.S. dollars, but a small percent of the bilateral trade is conducted in China’s currency, the renminbi (RMB). Because the RMB is allowed to fluctuate within a small range, the exchange rate between the RMB and the U.S. dollar changes over time. As a result, the value of a 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. Exchange rate changes are generally 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 shaded text box, “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 or over invoicing of exports (see below).

Under and Over Invoicing

Some analysts believe that Chinese importers may intentionally undervalue imports from the United States to lower the import tariff due on the shipment, while others maintain the Chinese companies may overvalue imports to secure additional foreign exchange. In addition, some analysts believe that Chinese exporters may intentionally undervalue exports to the United States to maximize their net proceeds overseas for various tax and regulatory reasons. Bilateral trade figures may also be distorted by “phantom goods” shipments from China to the United States (and other locations) used to disguise attempts to move financial capital offshore. Due to the “hidden nature” of under and over invoicing, it is difficult to assess how much, if at all, this may be contributing to the differences in the trade data.

Intermediation

Although estimates vary, many analysts agree that a portion of China’s exports arrive in the United States via a third party, Hong Kong being the most commonly identified location. The

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16 Since June 2010, China has maintained what it calls a “managed floating exchange rate regime” that allows its 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.


18 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
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, based on U.S. laws and regulations. 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.

A 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 (see text box). Separate U.S. and China government studies of the trade data conducted in 2009 and 2012 under the auspices of the U.S.-China JCCT found that the greatest discrepancy is in the “eastbound trade” data, which accounts for 80%-90% of the overall difference in the 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.”

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.” The Working Group subsequently decided to conduct a reconciliation study to determine the causes of the discrepancies. However, the Working Group stated 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.

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 2019 was more than three times the size of the next largest bilateral trade deficit (Mexico, $101.8 billion) and greater than the sum of the next four largest bilateral trade deficits.

For a number of years, China did not accept the “accuracy” of the official U.S. figure for the Sino-U.S. trade balance. A 1997 White Paper issued by China’s State Council, “On Sino-US Trade Balance,” states, “Statistics and analyses prove it true that Sino-US trade has been in favour of China in recent years, but it is obvious that the size of the US deficit has been largely 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.

19 Ibid.


21 The next four largest bilateral trade deficits in 2019, in order, were Mexico—$101.8 billion; Japan—$69.0 billion; Germany—$67.2 billion; and Vietnam—$55.8 billion.
exaggerated by the US side.” 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.” Such criticisms of U.S. trade statistics seems to have subsided, possibly due to the joint studies conducted under the JCCT.

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 that any proposed “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 differences in assessing product value or determining the country of destination and/or origin—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.

Selected Bibliography on the Differences Between U.S. and Chinese Bilateral Trade Figures


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