

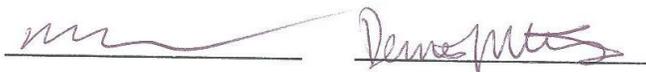
**The Second Phase Report on the
Statistical Discrepancy of Merchandise Trade
between the United States and China**

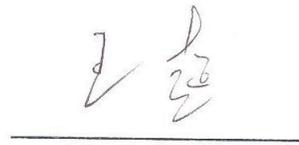
December 2012

**Department of Commerce
United States of America**

**Office of the United States
Trade Representative
United States of America**

**Ministry of Commerce
People's Republic of China**





Research Report

I. Overview

Background

The Statistics Working Group, under the auspices of the Joint Commission on Commerce and Trade, conducted a second reconciliation study to explain and quantify discrepancies in the official U.S. – China bilateral merchandise trade statistics. This is an update to a previous report¹ prepared by the working group.

The goal of the reconciliation studies is to identify the causes of the statistical discrepancies in the official data of the two countries, and to facilitate a common understanding by the data users of why the differences exist. The focus of the working group is to verify and quantify the major causes for the bilateral statistical discrepancies. Adjustments made during the reconciliation of the bilateral statistical data do not implicate errors in the statistical systems of either country. Neither do the adjustments represent revisions or corrections to either country's published trade figures.

The research is based on the published bilateral merchandise statistical data in the calendar years 2008, 2009, and 2010, compared to the previous study that used data covering years 2000, 2004 and 2006. This report focuses on the results from analyzing the more recent data and also includes some results from the previous study to show comparisons and trends.

Research Methods

The working group identified and quantified major causes for the bilateral statistical discrepancies. The next three sections describe the causes and the size of their contributions to the overall discrepancies. For additional information on the Research Methods, please see Appendix I.

¹ The report is available at http://www.census.gov/foreign-trade/aip/recon_china_000406.pdf (English version) and <http://zhs.mofcom.gov.cn/accessory/201004/1271033722404.pdf> (Chinese version).

II. Eastbound Trade

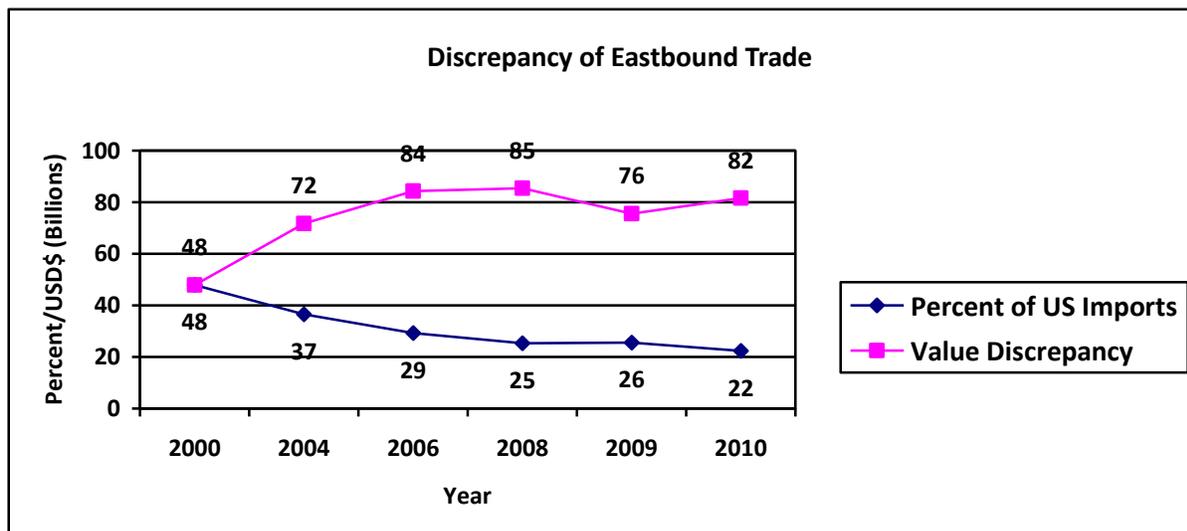
The largest differences between the partner country official trade statistics have consistently been in eastbound trade (China exports and U.S. imports). The discrepancy has been large and has fluctuated in total dollar value over the study years, but the difference in percentage (percentage of the bilateral discrepancy over the U.S. imports) has declined.

During the three researched data years 2008 through 2010, the eastbound trade's statistical discrepancy reached USD 85.41 billion in 2008, USD 75.60 billion in 2009, and USD 81.65 billion in 2010; accounting for 89.6 percent, 90.6 percent, and 88.9 percent of the total discrepancy in percentage for each year, respectively. As shown in Table 1 and line chart below, the discrepancy declined from 47.9 percent in 2000 (earliest data year analyzed in the previous study) to 22.4 percent in 2010. The line chart that follows clearly shows that over the 11 year span, the overall share of the discrepancy for eastbound trade has steadily declined.

Table 1: Statistical Discrepancy of Eastbound Trade
Unit: Billions U.S. dollars

Year	China Exports	U.S. Imports	Bilateral Discrepancy	Discrepancy in Percentage*
2000	52.10	100.06	47.96	47.9
2004	124.95	196.70	71.75	36.5
2006	203.47	287.77	84.30	29.3
2008	252.38	337.79	85.41	25.3
2009	220.80	296.40	75.60	25.5
2010	283.29	364.94	81.65	22.4

* = Bilateral discrepancy / U.S. imports



1. Known and Measurable Differences in Definitions and Methodology

a. Statistical Territory (Geographic)

The United States includes Puerto Rico and the U.S. Virgin Islands as part of its customs territory, while China treats them as separate jurisdictions hence excluding the trade with these territories in exports to the United States.

According to the U.S. statistics, the two regions imported from China USD 0.74 billion, USD 0.73 billion and USD 0.77 billion in the calendar years 2008, 2009 and 2010 respectively.

b. Time Lag

Time lag discrepancy is the net effect of goods imported in the year after they were exported. This most often occurs on shipments by ocean going vessels because of the long distance. Using dates of exportation and importation in U.S. import statistics, the working group can estimate this difference.

The working group estimated this adjustment to be USD 0.39 billion, USD 0.96 billion and USD 3.05 billion in the calendar years 2008, 2009 and 2010 respectively.

c. China's Re-exports

Chinese export statistics include re-exports of goods not of Chinese origin bound for the United States, which are recorded in U.S. statistics as imports from the country of origin.

The reported values of re-exports in Chinese export statistics are USD 2.93 billion, USD 2.58 billion and USD 3.42 billion for calendar years 2008, 2009 and 2010 respectively.

d. Other Differences

There remains other possible differences that may exist in the eastbound trade. One example is U.S. re-exports of Chinese goods (see Appendix II). This information is incomplete; therefore the working group did not attempt to estimate adjustments for these factors. However, this does not exclude the possibility that these differences add to the statistical discrepancies in the eastbound trade.

2. Statistical Discrepancy in Direct Trade

According to China's statistics, in years of 2008, 2009 and 2010, the proportion of trade moving directly to the United States from China in the total value of China's exports

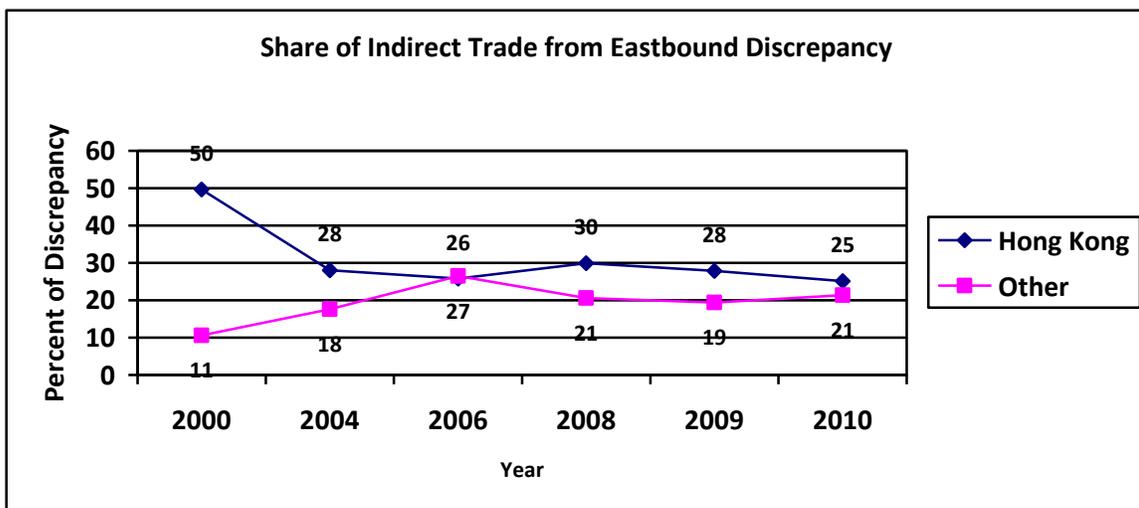
increased from 91.5 percent in 2008 and 2009 to 92.0 percent in 2010. While according to U.S. statistics, the proportion of direct imports from China increased from 80.9 percent in 2008, to 81.6 percent in 2009 and 83.4 percent in 2010.

Differences in the bilateral published statistics by both countries may occur when an intermediary party purchases the goods after export and resells them to a third party in the United States at a higher price. This occurs more frequently with direct shipments of processed goods. Applying the working group’s estimation (see Appendix III for detailed calculations), the statistical discrepancies caused by direct shipments of processed goods by values being added to intermediary parties were USD 19.55 billion in 2008, USD 15.59 billion in 2009, and USD 22.11 billion in 2010.

3. Statistical Discrepancy in Indirect Trade

Indirect trade may contribute to the discrepancies by new values being added when the goods are re-processed or re-packaged in the intermediary country or region, or by China export statistics showing shipments to other countries because the United States was not known to be the last destination at the time of export. Indirect trade has continued to play an important role in contributing to the eastbound trade statistical discrepancy in this and the previous study. During the period of 2008 through 2010, the percentage of eastbound trade shipped through intermediary countries or regions decreased from 8.5 percent to 8.0 percent in the Chinese statistics; while it decreased from 19.1 percent to 16.6 percent in the U.S. statistics. Nevertheless, the statistical discrepancy in this indirect trade for 2009 and 2010 still accounts for about 47 percent of the entire discrepancy in the eastbound trade.

In the line graph below, including information from the previous study, the data show the share of eastbound statistical discrepancy from shipments via Hong Kong is decreasing, while the share for shipments via other intermediaries is increasing.



a. Discrepancy in Shipments Via Hong Kong

When goods are shipped via Hong Kong, unless the nature of the good was substantially transformed, the United States will include these goods and their added values in the U.S. statistics as goods imported from China. In addition, some goods that were declared as exports to Hong Kong at the time of exportation from China actually were exported to the United States. Data from the above-mentioned two situations have to be adjusted.

The statistical discrepancies caused by shipments via Hong Kong reached USD 25.55 billion, USD 21.11 billion and USD 20.47 billion in calendar year 2008, 2009 and 2010 respectively (see Appendix IV for detailed calculations).

b. Discrepancy in Shipments Via Other Intermediary Countries or Regions

Similar to goods shipped via Hong Kong, the discrepancy may occur in two situations. One is the value added in the intermediary countries of goods exported from China to the United States. The other involves some goods declared as exports to the intermediary countries or regions at the time of exportation from China that were actually exported to the United States.

According to the U.S. statistics, all imports of Chinese goods from intermediary countries excluding Hong Kong had a total value of USD 17.75 billion, USD 14.81 billion and USD 17.73 billion in the calendar years 2008, 2009 and 2010 respectively; and according to the Chinese statistics, those were valued at USD 0.18 billion, USD 0.16 billion and USD 0.25 billion in the corresponding time period. Based on these statistical data, the bilateral discrepancy for the transshipments via other intermediaries is USD 17.57 billion, USD 14.66 billion and USD 17.48 billion.

4. Adjustment of Statistical Discrepancies in the Eastbound Trade

To summarize the results of study, the working group has adjusted the bilateral statistical discrepancies as follows (See Table 2):

**Table 2: Adjustment of Statistical Discrepancies
In the Eastbound Trade
Unit: Billions U.S. dollars**

Eastbound Analysis (Billions)						
YEAR	2008		2009		2010	
	U.S. Imports	China Exports	U.S. Imports	China Exports	U.S. Imports	China Exports
PUBLISHED DATA	337.79	252.38	296.40	220.80	364.94	283.29
DIFFERENCES ADJUSTMENT:						
CHINESE RE-EXPORTS		-2.93		-2.58		-3.42
GEOGRAPHIC ¹	-0.74		-0.73		-0.77	
DIRECT TRADE ²	-19.55		-15.59		-22.11	
INDIRECT TRADE ³						
TOTAL VIA HONG KONG	-25.55		-21.11		-20.47	
VIA OTHER	-17.57		-14.66		-17.48	
TIMING ADJUSTMENT	-0.39		0.96		3.05	
TOTALS	273.99	249.46	245.28	218.22	307.16	279.87
RESIDUAL ⁴	-24.53	-7.3%	-27.06	-9.1%	-27.30	-7.5%

1 - Puerto Rico and Virgin Islands not included in China's exports to the U.S.
2 - Adjustment made due to valuation differences in processed goods. See Appendix III for calculation.
3 - Adjustment made due to value added in intermediary countries or regions. See Appendix IV for calculation.
4 - Residual is the difference between China's exports and U.S. imports after adjustments.
Residual percentage is the difference as a proportion of the U.S. imports from China.

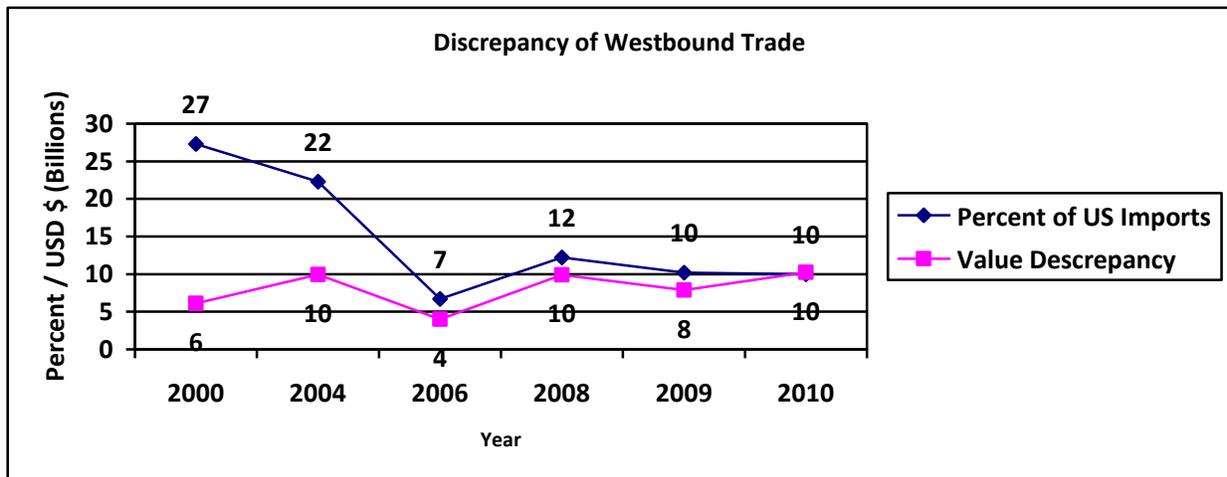
III. Westbound Trade

Total westbound trade is much smaller than eastbound trade, as are the differences between the two countries' official trade figures. Specifically, these differences average just over USD 9 billion dollars over the three years covered in the study. The differences found in eastbound trade, averaging just over USD 80 billion, are over 8 times larger. Over the 11 year span, even though the westbound trade discrepancy between Chinese and U.S. data value discrepancy increased from about USD 6 billion in 2000 to about USD 10 billion in 2010, the discrepancy percentage share decreased from 27.3 percent in 2000 to 10.0 percent in 2010 (see Table 3 and line chart on next page).

Table 3: Statistical Discrepancy of Westbound Trade
Unit: Billions U.S. Dollars

Year	U.S. Exports	China Imports	Bilateral Discrepancy	Discrepancy in Percentage*
2000	16.25	22.36	6.11	27.3
2004	34.72	44.66	9.94	22.3
2006	55.22	59.21	3.99	6.7
2008	71.46	81.36	9.90	12.2
2009	69.57	77.46	7.89	10.2
2010	91.88	102.10	10.22	10.0

*=bilateral difference/China imports



1. Known and Measurable Differences in Definitions and Methodology

a. Statistical Territory (Geographic)

The United States includes Puerto Rico and the U.S. Virgin Islands as part of its customs territory, while China treats them as separate jurisdictions hence excluding the trade with these territories in exports from the United States.

According to the U.S. statistics, goods exported from Puerto Rico and the United States Virgin Islands to China had a value of USD 0.16 billion, USD 0.26 billion and USD 0.60 billion in the calendar years 2008, 2009 and 2010 respectively.

b. Shipping Costs

China includes the costs of insuring and transporting goods in its import statistics, thus valuing westbound trade on a CIF (cost, insurance and freight) basis. The United

States assesses the value of exported goods on the dock prior to their being loaded on to a ship, or on an FAS (free alongside ship) basis. To account for this differing treatment of international shipping costs, the working group made an adjustment to Chinese import values.

Since no direct measure of shipping costs is available in either the U.S. or Chinese westbound trade statistics an estimate of these costs was used. The United States tracks shipping charges on imported goods separately (eastbound trade in this study), therefore the ratio of shipping charges to import values (FAS) in each year of the study was used to estimate costs of shipping on westbound trade. This ratio was approximately 5 percent for all three years of the analysis.

The shipping costs adjustment were estimated to be USD 4.46 billion, USD 3.47 billion and USD 5.05 billion in 2008, 2009 and 2010 respectively.

c. U.S. Re-exports

The U.S. export statistics include goods that did not originate in the United States, but were exported from the United States. Such exports, however, appear in Chinese statistics as imported from the country of origin. Since re-exports are not “U.S. goods,” the adjustment was made to U.S. export data.

By U.S. measures, westbound re-export values average around 6.4 percent of U.S. exports for all years included in the study. The U.S. statistics indicate that the value of the U.S. re-exports is at USD 4.29 billion, USD 4.45 billion and USD 6.13 billion in the calendar years 2008, 2009 and 2010 respectively.

d. Value of Repairs

The United States includes goods for repair at the value of the repairs in their exports while China does not include goods for repair in their imports. As a result, the analysis subtracted the cost of repairs from U.S. export values.

According to the U.S. statistics, the values of repaired goods exported by the United States are USD 0.18 billion, USD 0.16 billion and USD 0.18 billion in the calendar years 2008, 2009 and 2010 respectively.

e. Other Differences

Because the statistical discrepancy in westbound trade only accounts for a small portion of the whole, and data identifying direct and indirect trade and time lags are not available, the working group did not attempt to estimate adjustments for these factors. However, this does not exclude the possibility that these differences are causes for the statistical discrepancies in the westbound trade.

2. Adjustment of Statistical Discrepancies in Westbound Trade

The results of the analysis of westbound trade explained small portions of the differences (see Table 4). The rate of the residual discrepancy remains at a consistent 12 percent for all three years of this study.

**Table 4: Adjustment of Statistical Discrepancies
In Westbound Trade
Unit: Billions U.S. dollars**

Westbound Analysis (Billions)						
YEAR	2008		2009		2010	
	U.S. Exports	China Imports	U.S. Exports	China Imports	U.S. Exports	China Imports
PUBLISHED DATA	71.46	81.36	69.58	77.46	91.88	102.10
DIFFERENCES ADJUSTMENT:						
RE-EXPORTS	-4.29		-4.45		-6.13	
GEOGRAPHIC ¹	-0.16		-0.26		-0.60	
SHIPPING		-4.46		-3.44		-5.05
REPAIRS	-0.18		-0.16		-0.18	
TOTALS	66.82	76.90	64.71	74.02	84.97	97.05
RESIDUAL ²	10.08	12.4%	9.31	12.0%	12.08	11.8%

1 - Puerto Rico and Virgin Islands not included in China's imports from the U.S.

2 - Residual is the difference between the U.S. exports and China's imports after adjustments.
Residual percentage is the difference as a proportion of the China imports from the U.S.

IV. Conclusion

The working group used a similar approach compared to the previous study to identify and measure the main characteristics and causes of the statistical discrepancies in bilateral merchandise trade published by both countries. The results are as follows:

1. The share of statistical discrepancy in bilateral trade was declining continuously. The percentages of the eastbound and westbound statistical discrepancies were generally consistent in the years 2008, 2009 and 2010, and were lower than the discrepancies for the years analyzed in the previous study (2000, 2004 and 2006). The rate of discrepancy in eastbound trade remained steady from 25.3 percent to 25.5 percent then decreased to 22.4 percent in years 2008, 2009 and 2010 respectively; while it decreased from 12.2 percent to 10.2 percent, then to 10.0 percent in westbound trade in the corresponding time periods.
2. The greatest discrepancy in the merchandise trade statistics between the United States and China continues to be in the eastbound trade. The discrepancy in the eastbound trade accounts for more than 88 percent of the entire discrepancy. Research efforts remained focused on eastbound trade due to the higher volumes and larger discrepancies.
3. The working group analyzed the causes for the discrepancy in the eastbound trade. The major findings are:
 - a. Eastbound trade that moves directly from China to the United States without entering the commerce of intermediary countries or regions accounts for over 50 percent of the total eastbound discrepancy. This is slightly higher than the previous study. Processed goods cover a high proportion in the bilateral eastbound direct trade (56 percent, 57 percent, and 55 percent for 2008, 2009, and 2010 respectively according to Chinese statistics). These processed goods usually possess higher import values when declared to U.S. Customs due to markups by intermediary parties. The proportion of direct trade has continued to grow between 2008 and 2010, as has its contribution to the eastbound discrepancy.
 - b. The amount of goods shipped via intermediary countries or regions and value added in those countries or regions account for a large part of the discrepancy. Even though the proportion of intermediary trade in the bilateral trade has decreased, the discrepancy caused by intermediary trade still accounts for 47 percent in 2010 of the entire discrepancy. The discrepancy of intermediary trade via Hong Kong continues to have a greater impact on the discrepancy compared to other countries or regions, but the share of discrepancy from shipments via Hong Kong is decreasing.
 - c. Conceptual and methodological differences in the compilation and processing of the trade data, including statistical territory definitions and the difference of re-exports from China, continue not to have much net impact on the bilateral trade discrepancy because they cancel out each other.

4. Results of the westbound analysis were similar to the previous study. The working group found that U.S. re-exports are the main factor that causes the statistical discrepancy in westbound trade. Different methods of valuation applied by both countries widened the discrepancy, so the net impact of adjusting for definitional and conceptual differences is minimal.
5. Through the effort of both sides, after measurable adjustment of identified factors, the residual percentage of statistical discrepancy decreased from the previous study (2000, 2004 and 2006). The average residual percentage of statistical discrepancy in eastbound was 8.0 percent, which decreased 1.3 percent from the previous study; while the average residual percentage of statistical discrepancy in westbound was 12.1 percent, which decreased 6.3 percent from the previous study.

Research Methods

Although both the United States and China follow the United Nations guidelines on merchandise trade statistics programs, it does not mean the corresponding import/export data from both countries will match. There are several aspects of the guidelines, such as valuation and partner country attribution, that when followed, actually create bilateral discrepancies. For example, China includes international freight and insurance charges in their import statistics, and the United States excludes these charges in their export statistics.

Trade via intermediary countries, particularly Hong Kong, has a measurable effect on the comparability of the bilateral statistics. Both China and the United States attribute imports to the country of origin and exports to the country of final destination as known at the time of export. In the case of trade between China and the United States via Hong Kong, the destination as known at the time of export is often Hong Kong. Yet when the goods are subsequently imported by China and the United States, the importing country's statistics will be based on the country of origin, which may not be Hong Kong.

Even after factoring in known and measurable differences in definitions and methodology, discrepancies exist. These discrepancies are much larger on eastbound compared to westbound trade, so most of the working group's efforts were focused on eastbound trade. The working group divided eastbound trade into two parts to examine the discrepancies: (1) Direct trade - trade that moves directly from China to the United States without entering the commerce of any other countries or regions; and (2) Indirect trade - trade that moves from China to the United States via intermediary countries or regions. The differences in the statistical concepts and definitions between China and the United States are shown below.

Comparing the Statistical Concepts and Definitions in Trade Between the United States and China

	China	United States
Trading System	General Trading System	General Trading System
Valuation:		
Exporting	FOB (Free on Board)	FAS (Free Alongside Ship)
Importing	CIF (Including Cost, Insurance and Freight)	FAS and CIF
Partner Countries		
Exporting	Final Destinations or countries (ports) of arrival	Final Destination
Importing	Country of Origin or Starting country	Country of Origin or Exporting Country
Classifying System	Harmonized System Code 10(6+4)	Harmonized System Code 10 (6+4)
Source of Data	Exporter's /Importer's Declarations	Exporter's /Importer's Declarations
Statistical Timing	Starting at goods being cleared by the customs	Starting at goods being cleared by the customs
Territory Bounds	Custom districts in the People's Republic of China, excluding Hong Kong, Macao and Taiwan	Including the United States, Puerto Rico, and the United States Virgin Islands
Low Value Limits		
Exporting	No Specific Regulation	2500 U.S. dollars
Importing	RMB 5000	2000 or 250 U.S. dollars
Intangible Trade	No Specific Regulation	The best estimate
Non-Commercial Trade	Include the trading value	Include the trading value
Donations and Aids	Include the trading value	Include the trading value
Re-export	Partially included and not recorded separately	Included and recorded separately
Re-import	Included	Partially included

Appendix II

U.S. Re-exports of Chinese Goods

The United States can be an intermediary country that re-exports Chinese origin goods to other countries or regions, such as Canada or Mexico. In this situation, discrepancies in the bilateral trade statistics may occur, even though both the United States and China follow U.N. guidelines for country attribution. U.S. imports may be higher than Chinese exports because the United States records the country of origin (China), and China records the country of final destination (e.g. Canada or Mexico).

The country of origin is not collected by the United States on re-exports bound for Mexico, or any other countries. But, through a data exchange agreement with Canada, information on U.S. re-exports of Chinese origin goods is available on shipments bound for Canada. This value for each year of the study was: 2008 - \$9.4 billion; 2009 - \$8.7 billion; 2010 - \$11.0 billion.

Since information on U.S. re-exports of Chinese goods is incomplete, the working group did not attempt to estimate an adjustment.

Appendix III

Calculation of the Added Value for Direct Trade of Processed Goods

Chinese exports of processed goods that were shipped directly to the United States may be valued higher in U.S. import statistics than in China export statistics. This is because the goods may be purchased by an intermediary party after export and resold to a U.S. buyer at higher prices, so that the added values were not included in the China's exports statistics but were included in the U.S. import statistics. This is an important factor in causing the statistical discrepancy in the bilateral trade of the United States and China.

The rate of added value of these shipments is the rate of increase derived from comparing the U.S. import values of these shipments with the price adjusted values of the Chinese exports. The same method used to estimate the added value of indirect shipments via Hong Kong was used to calculate the added value of direct trade of processed goods (See Appendix IV). The formula for the calculation is as follows:

Adjusted Export Value = Chinese Processed Trade Unit Price * U.S. Trade Quantity

Processing Export Adjusted Value = Adjusted Export Value * Processed Trade Ratio

$$\begin{aligned} \text{Percentage of added value} &= \frac{\sum \text{Processed Export Adjusted Value}}{\sum \text{Imports U.S. Value}} \\ &= \text{The sum of (unit price of these shipments) * (quantity of these shipments) divided by the sum of U.S import value} \end{aligned}$$

Based on the percentage of added value calculated, the rate of increase in the shipments of direct trade of processed goods can be derived by the following formula:

The Amount of Value Increased = (rate of Value Increase - 1) * Import value of these shipments

Sources for the calculation of the percentage of added value are from three areas. They are as follows:

- (1) Using China's export statistics of direct trade of processed goods, for 6 digit Harmonized System (HS) codes where processed goods trade accounts for 50 percent or more of the value, and U.S. import statistics for the same 6 digit HS codes. The working group used the 50 percent threshold to approximate where trade in processed goods exists in U.S. imports, since this trade cannot be identified in the U.S. statistics.
- (2) Comparing the adjusted value of direct trade of processed goods based on the unit price of Chinese goods and U.S. import values.

Appendix III (cont.)

- (3) Including commodities (with 6 digit HS codes) whose unit price can be obtained, and where adjusted value is less than U.S. value. The working group felt that resulting adjustments to the values were unreasonable for 6 digit HS codes when they were more than the reported U.S. import values, so calculations for the estimates excluded these codes.

Appendix IV

Calculation of the Added Value of Shipments via Hong Kong

Chinese goods that were shipped via Hong Kong to the United States usually have higher values than goods imported by Hong Kong from China. This is because goods have been further processed in Hong Kong for an added value or their prices were raised for higher profits. The added values or raised prices were not included in the China's exports statistics but were included in the U.S. import statistics. This is an important factor in causing the statistical discrepancy in the bilateral trade of the United States and China.

The rate of added value of these shipments is the rate of increase derived from comparing the values of these shipments of Chinese goods shipped via Hong Kong and values of Chinese goods imported by Hong Kong. In other words, this is the ratio of value added in Hong Kong to the entire value of shipments via Hong Kong. The formula for the calculation is as follows:

$$\text{Percentage of added value} = \frac{\text{Hong Kong re-exports of Chinese goods}}{\text{Imports of goods re-export value}}$$

Percentage of added value = Value of Chinese goods shipped to the United States via Hong Kong divided by the import value of these shipments

$$\begin{aligned} &= \frac{\sum (\text{Re-export price} * \text{re-export quantity})}{\sum (\text{Import price} * \text{re-export quantity})} \\ &= \frac{\text{The sum of (unit price of these shipments) * (quantity of these shipments)}}{\text{The sum of (unit price of imported goods) * (quantity of these shipments)}} \end{aligned}$$

Based on the percentage of added value calculated, the rate of increase in the shipments via Hong Kong can be derived by the following formula:

$$\text{The Amount of Value Increased} = (\text{rate of Value Increase} - 1) * \text{Import value of these shipments}$$

Sources for the calculation of the percentage of added value are from three areas. They are as follows:

- (1) Using Hong Kong's statistics of the goods imported and shipped via Hong Kong.
- (2) Comparing the unit price of Chinese goods imported by Hong Kong and the change in the unit price of the Chinese goods shipped to the United States via Hong Kong.
- (3) Including all commodities (with 6 digit HS codes) whose unit price can be obtained.