

# **U.S. Merchandise Trade Statistics**

## **A Quality Profile**

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# I. INTRODUCTION

## A. Purpose of the Paper

The merchandise trade statistics measure goods traded between the United States and other countries. These statistics are the official source of information about U.S. imports, exports, and balance of merchandise trade. As a leading economic indicator and a major component of the Gross Domestic Product (GDP), the statistics provide critical information to a wide and varied group of users in the public and private sectors. The U.S. Census Bureau (Census Bureau) strives to provide accurate, high quality statistics to meet these needs. However, to use the information wisely and appropriately, users need to understand the nature and limitations of the merchandise trade statistics program. This paper discusses issues affecting the quality of the statistics and some known limitations. It also includes discussions of recent and proposed improvements in the quality of the statistics.

This paper covers only the statistics on trade in goods on a Census Bureau basis. The data on trade in services and on a balance of payments basis, published in the **FT-900, U.S. International Trade in Goods and Services**, are compiled by the Bureau of Economic Analysis (BEA). Information on the BEA data is available on the Internet ([www.bea.gov](http://www.bea.gov)) or by calling (202) 606-9559.

Comments or questions about the information in this paper or suggestions for future reports are welcome. Please direct comments or questions to the Census Bureau at (301) 763-3080.

## B. Source of the Statistics

The Census Bureau collects and compiles merchandise import and export data from various electronic and manual (paper) sources. These data represent shipments through more than 400 ports of entry and exit in the United States, Puerto Rico, and the Virgin Islands.

Sources for import statistics include (1) U.S. Customs and Border Protection's (CBP) Automated Broker Interface (ABI), (2) CBP Automated Commercial Environment (ACE), (3) paper import entry summaries, (4) paper or electronic applications for foreign trade zone admission, and (5) Canadian data on exports of natural gas and electricity to the United States provided by Statistics Canada. Import documents are completed by the importers or their licensed brokers and are filed directly with CBP. In 2012, the Census Bureau collected trade statistics on more than 63 million import transactions. Over 99% of the transactions were received electronically by CBP, and about 0.2% were filed on paper documents. These paper documents account for less than 1% of import value. Paper documents are collected by CBP and mailed to the Census Bureau's Puerto Rico Trade Data Staff, which enters the statistical data and transmits these data to Census Bureau headquarters for further processing.

Sources for export statistics include (1) Electronic Export Information (EEI) through the Automated Export System (AES) and ACE and (2) Canadian data provided by Statistics Canada. The EEI filings are required for shipments to all countries except Canada, and are completed by U.S. principal parties in interest (exporters) or their duly authorized agents.

In 2012, the Census Bureau collected trade statistics on about 35.2 million export transactions. Approximately 67.4% of export transactions are submitted electronically through AES. The remaining 32.6% of the export transactions are acquired through a data exchange with Statistics Canada. The United States derives its statistics on exports to Canada from import data filed with Canada. Likewise, Canada derives its export statistics for shipments to the United States from U.S. import data. For more information on the data exchange, see "U.S.-Canada Data Exchange," 1990-2001 (available on the Internet at [www.census.gov/foreign-trade/aip/uscanada.pdf](http://www.census.gov/foreign-trade/aip/uscanada.pdf)) or contact the Census Bureau at (301) 763-6995.

## C. Recent Improvements

In an effort to increase the timeliness and quality of international trade statistics for data users, there were three notable improvements in 2013 and 1<sup>st</sup> quarter 2014.

### **Accelerated Release Schedule**

The Census Bureau and the BEA undertook a project to accelerate the release of the **FT-900, U.S. International Trade in Goods and Services**. Beginning with January 2013 statistics, the *FT-900* is available an average of 35 calendar days after the end of the reference month. This accelerates the release of the *FT-900* by approximately 5 days. This acceleration results in slightly higher carry-over rates (data that are received late and carried over into the next statistical month). However, the rates average less than 1% of the total value for imports and less than 0.5% of the total value for exports on a monthly basis. For more information regarding carry-over, please review [Section III. D. Late Filing](#) in this document.

### **Updated Revisions Procedure**

The Census Bureau updated the trade statistics revisions procedure for not seasonally adjusted series. Previously, the not seasonally adjusted data were only revised for the previous year while seasonal factors and deflators were revised for the prior three years. With the release of the **U.S. International Trade in Goods and Services: Annual Revisions for 2012** in June 2013, the Census Bureau applied corrections and adjustments to the not seasonally adjusted data for the prior three years, consistent with the three years of revised seasonal factors and deflators. This updated revisions procedure improves the overall quality and relevance of the published trade statistics.

## **Geographic Seasonal Adjustments**

The Census Bureau began publishing seasonally adjusted data by select countries and world areas with the January 2014 *FT-900* press release. Twelve high profile countries and five world areas were selected based on several considerations including the presence of seasonality and the interests of data users. Due to the geographic nature of many moving holidays, we reviewed the country and world area data for moving holiday effects and adjusted for these effects when appropriate. For more information regarding geographic seasonal adjustments, refer to [Section IV.B. Adjustment for Seasonal and Trading Day Variation by Geographic Area.](#)

## **II. Quality and Automated Reporting**

The use of automated reporting has improved the quality of the merchandise trade statistics. Automated reporting allows the Census Bureau to receive and compile the data in a timely manner and include almost all shipments in the correct statistical month. Automated reporting minimizes lost data and provides better control over non-filing. In addition, since the Census Bureau receives pre-edited data through the U.S.-Canada Data Exchange, AES, ABI, and ACE, the information arrives with fewer reporting errors. Less than 29% of data records captured from CBP Entry Forms 7501 (import paper documents) contain an error as compared to less than 9% of automated records.

The enhanced quality of automated submissions results from the high standards required of automated reporters. The CBP and the Census Bureau test and approve all import brokers and AES participants before they can submit shipments electronically. In addition, many of the Census Bureau's statistical edits reside in the CBP computer system that houses ABI, ACE, and AES. These edits intercept data problems for return to the import broker or AES participant for resolution prior to acceptance. Census Bureau and CBP client representatives track and assist filers who frequently report problem data; however, data filers who fail to resolve problems or who repeatedly make the same errors face possible fines or penalties.

Furthermore, Census Bureau edits also reside in the Statistics Canada import processing system to meet U.S. export needs. Representatives from the statistical and customs agencies of each country meet regularly to resolve any problems and keep abreast of any changes that may affect the export programs.

### **A. Mandatory Automated Export System (AES)**

Effective July 2, 2008, the Census Bureau began requiring mandatory electronic filing of export information via the AES. Automated reporting has essentially eliminated coverage concerns. Filing via AES is mandated under Title 15, Foreign Trade Regulations (FTR) and filers may receive penalties for failing to file or fraudulently

filing. To ensure the receipt of quality data, the system contains up-front on-line validation checks that immediately detect and help reduce reporting errors. If filers' entries contain reporting errors, the AES will not allow the information to be submitted and will notify the user of such issues. Along with error notifications, filers are also monitored for compliance and receive an AES Compliance Report. The AES Branch monitors filers' compliance rates and conducts outreach to educate filers with outstanding errors or low compliance rates. This additional monitoring allows the Census Bureau to identify improvements that can be made to data editing procedures and processes. For more information on the FTR or the AES, please call 1-800-549-0595, option 3 and option 1, respectively.

## **B. Automated Commercial Environment (ACE)**

The CBP, in collaboration with the Census Bureau and other agencies, designed a new automated data collection system known as the ACE. The Census Bureau started receiving import data in 2009 and export data in 2014 from the ACE. The Census Bureau expects to improve the quality of data received and increase communication with the trade community and other partner agencies. The goal of the ACE, when complete, is to be the primary way in which the U.S. Government collects information related to imports and exports. All data needed by any agency with trade related responsibilities will be collected and validated through a "single" window system. The Census Bureau processed approximately 4.4 million ACE transactions in 2012 and the number of monthly transactions continues to rise.

# **III. DATA QUALITY ASSESSMENT**

The Census Bureau conducts various research studies to assess the quality of trade statistics and to identify quality issues related to the data. Quality assurance procedures are performed at every stage of collection, processing, and tabulation; however, the data are still subject to errors. The following sections include an explanation of the most significant sources of errors: undocumented shipments, transiting goods, underestimation of low-valued transactions, late filing, reporting errors, and data capture errors.

## **A. Undocumented Shipments**

Federal regulations require importers, exporters, or their agents to submit detailed import and export information for all merchandise shipments above established exemption levels. Through comparisons of trade data with major trading partners, audits of trade documentation, and other measures, the Census Bureau has identified missing information for both import and export shipments. Missing documentation is more common with exports than with imports since import information is subject to greater scrutiny by CBP in relation to the administration of tariffs, quotas, and other enforcement activities, although automated reporting has helped to reduce the possibility of missing documents.

## **Exports Through Canada**

The movement of U.S. goods northbound through Canada en route to another destination can result in under coverage in filing U.S. export statistics. Most shipments to Canada do not require an EEI, as they are collected through the U.S.-Canadian Data Exchange. However, an EEI is required for goods that cross the Canadian border and are shipped to another country from a Canadian port.

Exporters may not comply with the reporting requirements for several reasons. In some cases, exporters may mistakenly believe that they are not required to file EEI, as this is not required for most goods shipped to Canada. In other cases, shippers may choose not to file the EEI because of a lack of enforcement of the reporting requirement. Ongoing education and border security efforts help minimize this problem.

## **Trade Reconciliations**

International merchandise trade reconciliation studies are conducted to identify and analyze statistical discrepancies in official published trade statistics between the participating countries. There are many definitional or conceptual reasons that can cause the discrepancies, including coverage, type of trade systems applied, time of recording, valuation, and statistical territory definitions. Errors in the statistics may occur, but usually have very little impact on the discrepancies. Even with many countries following the United Nations (UN) guidelines for merchandise trade statistical programs, discrepancies can and will still exist. Partner country attributions, free trade agreements, goods that travel indirectly from exporting to importing countries, consolidation of inventory, and assembly of multiple origin goods can all lead to discrepancies in comparing partner country official trade statistics. Reconciliation studies attempt to identify the situations that cause differences, and investigate new and innovative ways to possibly capture the missing pieces to the international trade statistics puzzle and ultimately improve the quality and integrity of the official trade statistics. Data users can benefit by gaining a better understanding of the statistics and using this information in their analyses and decisions. The Census Bureau is currently conducting a reconciliation study with China and Brazil. Information papers detailing these studies can be found at [www.census.gov/foreign-trade/aip/index.html](http://www.census.gov/foreign-trade/aip/index.html). For questions or additional information, contact the Census Bureau at (301) 763-3251.

## **Foreign Trade Zones**

In July 2007, the Census Bureau started the collection, processing and publishing of Foreign Trade Zones (FTZ) import admissions data through the Automated Commercial System. This automated source of reporting on electronic form E-214 ensures that the data are more accurate by informing the filers of incorrect

or incomplete data as they are reported, which is accomplished through the Census Bureau's up-front editing modules at CBP. The Census Bureau has made improvements in the quality and coverage of the FTZ admissions data as the companies filing the paper FTZ admissions continue to convert to reporting via the E-214 electronic method. The Census Bureau is striving to achieve greater usage of the electronic reporting through the data coverage monitoring programs and through education of and communication with the filers.

### **Canadian Locomotives and Railcars**

Changes in U.S. legislation during the 1990's adversely affected the Census Bureau's collection of import trade data for railcars. Importers were no longer required to report railcars on an Entry Summary. As a result, there was a significant decrease in reported imports of railcars, particularly from Canada. However, we are now able to collect and analyze some monthly import railcar data from Canada through a voluntary reporting process that Statistics Canada initiated in 2002. In order to alleviate this non-reporting issue, the Census Bureau is considering enhanced automation that will prevent under coverage of rail import data.

## **B. Transiting Goods**

Shipments of goods moving through the United States en route from one foreign country to another can create coverage problems that affect trade statistics. When transiting goods are shipped under bond, they are not subject to duties and are excluded from the merchandise trade statistics in accordance with the guidelines for international merchandise trade statistics established by the UN.

As many U.S. tariffs have been reduced or eliminated, the benefits of shipping goods under bond have decreased. As a result, companies often enter transiting goods into the United States using the import entry summary and file EEI when the goods leave the United States for the final country of destination. Contrary to the UN guidelines and less burdensome for some companies, this practice results in the inclusion of the transiting goods in the trade statistics.

While the practice of entering transiting goods does not affect the total trade balance, it does affect bilateral trade balances. For example, if goods shipped from Canada destined for Mexico enter the United States and are then re-exported to Mexico, the U.S. statistics will show an import from Canada (thus overstating our deficit with Canada) and an export to Mexico (understating our deficit with Mexico). In addition, this practice may create discrepancies between U.S. statistics and those of the foreign countries shipping the goods, if the shipping country records the goods as exports to the country of ultimate destination, not to the United States.

The issue of transiting goods is especially problematic for bilateral trade between Canada and the United States. While the implementation of the U.S.-Canada Data Exchange has improved coverage of both countries' export statistics, there is evidence that a substantial number of Canadian goods transiting southbound through the United States are entered as U.S. imports from Canada.

In looking for solutions to undocumented transiting goods trade, one option is to have CBP modify the import entry summary document in the ACE to capture transiting goods data that may be used to compile supplementary statistics, possibly on a post-publication basis. Implementing this requirement would require regulatory changes.

### **C. Low-Value Estimation Methodology**

Export statistics are fully compiled on shipments to all countries, except Canada, where the value of commodities classified under each individual Schedule B number is over \$2,500. Import statistics are fully compiled on shipments valued over \$2,000 or \$250 (for certain items previously subject to quota) for any transaction valued above these thresholds. As complete information is not always available for goods valued below these thresholds, the Census Bureau has produced estimates of these low-valued import and export transactions since the inception of the value thresholds. Effective with January 2010 statistics, we revised the low-value estimation methodologies for both import and export monthly statistics. The revised methodologies have improved the timeliness, relevance, and accuracy of the monthly international merchandise trade data. For exports, we have improved the methodology by taking into account low-valued data filed via small-package courier companies. In addition, we have improved timeliness by using data from the current month to estimate the low-valued exports, as opposed to basing the estimate on prior month statistics as had been done in the past. On average, the monthly export low-value estimates increased by 31% in comparison to the former methodology.

For import statistics, we implemented a revised low-value estimation methodology that takes into account all sources of low-valued data. In addition, we introduced a process that summarizes eligible data into detailed commodity statistics, helping to improve import coverage. We use data from the current month to base the low-value estimate, similar to the new export methodology, and this has improved the timeliness of estimates. As a result of implementing the new methodology, on average, the import monthly low-value estimate has decreased by 29%. However, we have added value to detailed statistics, via the new summarization methodology, and the net result of implementation of these new methodologies is roughly an increase in monthly total imports of 12%.

The monthly low-value estimates are typically about 0.6% of the total monthly import value and 1.9% of the total monthly export value.

An information paper on these estimation methodologies is available online in the reference section at [www.census.gov/foreign-trade](http://www.census.gov/foreign-trade) and at [www.census.gov/foreign-trade/aip/lvpaper.html](http://www.census.gov/foreign-trade/aip/lvpaper.html).

## **D. Late Filing**

Late filing and other problems may result in some import or export shipments not being included in the correct month's statistics. During the early 1980s, scarce resources resulted in relaxed procedures for handling statistical documents. These changes, coupled with dramatic increases in the numbers of import and export transactions, delayed the delivery of large numbers of documents to the Census Bureau's processing center. Often these late arrivals were too late for inclusion in the proper month's statistics. Because these shipments carried over into a subsequent month's statistics, the Census Bureau coined the term "carry-over."

The increased use of automated reporting has also improved the timeliness of the data and decreased carry-over. Import carry-over in 2012 ranged between 0.4% and 0.8% of the total value for the month and export carry-over in 2012 was typically between 0.1% and 0.3% of the total value of trade. Due to the increased adoption of automatic reporting and subsequent reduction in time needed to receive and process paper documents, the Census Bureau, since January 2003, is releasing statistics roughly 7 days earlier than they have been released in previous years. In 2013, we began further accelerating our release by an average of 5 days, resulting in slightly higher rates of carry-over (less than 1% of value for imports and less than 0.5% of value for exports). Please review [Section I. C. Recent Improvements](#) for more details regarding the accelerated release.

## **E. Reporting Errors**

Reporting errors are mistakes or omissions made by importers, exporters or their agents when reporting import or export shipments. Most errors involve missing or invalid commodity classification codes and missing or incorrect quantities or shipping weights. They have a negligible effect on import, export, and balance of trade statistics. However, they can affect detailed statistics significantly if not corrected or corrected inaccurately.

Prior analysis has shown that on average, less than 10% of all export transactions and less than 9% of all import transactions contain one or more reporting errors, although error rates for transactions reported on paper import documents are much higher. All export information, with the exception of exports to Canada, is filed electronically. Most of these errors are easily and accurately resolved with no significant effect on the published statistics.

The data are subjected to several types of processes to detect and correct these errors. The AES, ABI, and ACE contain on-line validation checks that immediately detect reporting errors and refer these errors back to the filer for correction.

In addition, data from all sources are edited and errors corrected through clerical or electronic means. The Census Bureau resolves many errors through electronically adjusting or imputing data on a shipment such as quantity or shipping weight. Imputes are based on historical data ranges to correct data that are outliers or have invalid relationships with other data fields, such as method of transportation or country of origin. Imputation of value is rarely done and it is done manually to ensure data of the highest quality.

Clerical correction is time consuming and expensive. Defective data referred for clerical correction costs more to process than data that successfully pass the edits. In addition, data referred for correction may not get into the correct statistical month. While imputation is less expensive, it may introduce some error into the statistics. Therefore, the most accurate and cost-effective means of resolving reporting errors is to prevent the occurrence.

The Census Bureau has several programs to reduce reporting errors by educating CBP staff, exporters, and forwarding agents about the statistical reporting requirements. Some current programs include the following:

### **Automated Export System (AES) Compliance Seminars**

The AES Compliance Seminar is a full day seminar followed by a second day that includes two half-day AES Workshops.

The purpose of the seminar is to offer members of the export international trade community expert training on the FTR, filing requirements, how to determine Schedule B commodity classifications, as well as a thorough overview of the AES, including system enhancements and common reporting problems. Experts from CBP or the Bureau of Industry and Security (BIS) discuss export enforcement.

The AES Workshop is held on the second day of the seminar. It is divided into two half-day workshops. The workshops provide training on how to successfully file EEI via the Windows-based desktop Personal Computer component, AESPCLink as well as the Internet-based system, AESDirect. Participants only need to attend one session and upon completing the training session the participant will be knowledgeable of the filing requirements of the EEI.

The Census Bureau held 28 AES Compliance Seminars in fiscal year 2013 with a total of 1,632 participants. Using participant feedback as a measure, these seminars have been very successful in providing members of the trade community with the tools and requirements necessary to file timely and accurate statistics, which ensures compliance with the FTR as well as assists in avoiding costly penalties with enforcement agencies.

## **Additional Training (Company Requests)**

In addition, U.S. companies may request company specific training and refresher workshops. In fiscal year 2013, there were four company visits (including one virtual training) with a total of 55 participants.

Furthermore, the Census Bureau manages the AES Compliance Program. The goal of this program is to identify, educate, and provide corrective actions to companies who are not in compliance with the FTR. This includes assisting companies in understanding export reporting requirements, facilitating the development and implementation of best practices at the company level to ensure compliance and reporting accuracy, and ultimately helping companies avoid costly encounters with government enforcement agencies.

In most cases, two-person teams visit companies that have been identified as non-compliant based on a combination of several components:

- Historical compliance rate below 95,
- Outstanding Fatal Errors,
- Violations of BIS licensing guidelines,
- Volume of monthly rejects,
- Post Departure Filing companies who report past the required period, and
- Companies that submit large or multiple Voluntary Self Disclosures (VSD).

Each team monitors their respective companies upon returning from the training.

## **Webinars, Tutorials, and Training Videos**

The Census Bureau provides many additional resources to educate and assist export filers. Such resources include free webinars, tutorials, and training videos. In fiscal year 2013, the Census Bureau held 20 webinars with 4,589 participants. This included a series called “Go Global,” which provided resources on becoming a successful exporter. Archived webinars, including a series on the “Fundamentals of Exporting,” training videos and tutorials can be accessed through the website at [www.census.gov/foreign-trade/outreach](http://www.census.gov/foreign-trade/outreach).

## **F. Data Capture Errors**

As explained earlier, the Census Bureau captures import and export information through various automated and manual (paper) sources. It subjects data from each source to various checks to ensure accurate capture of the information.

## **Automated Submissions**

Data received through automated collection programs (ABI, ACE, AES, and U.S.-Canada Data Exchange) are screened upon receipt to ensure completeness and an acceptable level of accuracy. On-line validations and commodity specific edits are applied to data reported electronically. Other security procedures guard against file damage that may compromise the integrity of the data.

## **Paper Documents**

While a minimal amount of paper import documents are filed, the Census Bureau uses a combination of data entry edits and keying verification to ensure the accurate capture of information from the CBP Entry Forms. Automated data entry checks validate all critical data fields and signal the keyer when the information is invalid. This process prevents many keying errors and intercepts many reporting errors. After data entry, the keyed information is subjected to verification.

## **G. Disclosure Avoidance**

The Census Bureau releases trade statistics that are as detailed as possible without disclosing confidential information. This means that different data releases may have different levels of detail. Anyone believing that their data may be disclosed in the published statistics at a commodity level, commodity by country level, or commodity by country by district level may send a written inquiry to the Office of the Division Chief, International Trade Management Division. Requests may be e-mailed to [Dale.C.Kelly@census.gov](mailto:Dale.C.Kelly@census.gov) or mailed to Office of the Division Chief, International Trade Management Division, U.S. Census Bureau, Washington, D.C. 20233

## **H. Requests for Re-Verification of Trade Statistics**

Data users may request a re-verification of recently released trade statistics. To request re-verification, data users submit formal, written requests to the Commodity Analysis Branch. These requests include the Harmonized Commodity Classification Code, which is the Harmonized Tariff Schedule (HTS) number for imports and the Schedule B number for exports, the reason for requesting re-verification, and the month(s) or year(s) in question. If the inquiry is restricted to trade with specific countries, the countries must be identified in the request. All requests for data re-verification are directed to the Chief of the International Trade Indicator Micro Analysis Branch via e-mail to [Carol.Ann.Aristone@census.gov](mailto:Carol.Ann.Aristone@census.gov) or mailed to Chief, International Trade Indicator Micro Analysis Branch, Economic Indicators Division, U.S. Census Bureau, Washington, D.C. 20233.

## **I. Revisions**

### **Monthly Revisions**

Monthly revisions are applied to the prior month data to account for transactions that are received too late to publish in the appropriate reference month. The revisions represent a small number of transactions for previous months. Monthly revisions are made based on the end-use commodity classification system and published in the monthly *FT-900*.

### **Annual Revisions**

Each June, not seasonally adjusted goods data are revised to redistribute monthly data that arrived too late for inclusion in the month of transaction but were initially included in the month in which the data were received. Once the redistributions of data to the proper month of transaction and any corrections or adjustments are completed, data for the prior three years are recompiled and published. In addition, factors for seasonal adjustments and trading day adjustments are reviewed and the seasonally adjusted current-dollar series is revised for the prior three years and the first three months of the current year. Similar changes are made to the chained dollar series.

### **Other Revisions**

For December and January statistical month releases, each month of the most recent completed year contains revisions in order to align the seasonally adjusted monthly data with not seasonally adjusted annual totals.

The Census Bureau receives revisions from Canada and makes corrections for prior period transactions to the cumulative-to-date totals for U.S. exports and U.S. exports to Canada. These revisions are applied at the detail level only with the release of the annual revision report.

## **IV. ADJUSTMENTS**

The Census Bureau adjusts merchandise trade data to remove the effects of seasonal influences and price shifts. Adjusted data appear in the monthly *FT-900*, released by the Department of Commerce. The adjustments remove known or predictable influences that may obscure true changes in the volume of merchandise traded.

## **A. Adjustment for Seasonal and Trading Day Variation by Commodity**

Many commodities tend to exhibit predictable calendar effects based on seasonal patterns or on the number of working days in a month (i.e. 'trading day' effects). In an effort to remove these predictable calendar effects from the data, we perform seasonal and/or trading day adjustments to the monthly value of the international trade statistics at a five-digit commodity end-use level. In order to perform these adjustments, we use the X-13ARIMA-SEATS software to develop time series models for the data and to produce adjustment factors. The models used to create these factors are based on a historic time series of data, and a stable pattern of seasonality or trading day effects in the data is required before we will begin adjusting a particular end-use series.

Despite our efforts to ensure the best possible adjustments to our data, it is not possible to remove all seasonal variation, particularly if the timing and magnitude of the seasonal or trading day effect is not predictable or stable. As a result, some residual seasonality may be present in published statistics. However, we constantly strive to improve the quality of our seasonal adjustments by analyzing data for residual seasonality or trading day effects. We review our models annually when additional data become available to detect any changes to the patterns for each series.

## **B. Adjustment for Seasonal and Trading Day Variation by Geographic Area**

Similar to commodity-based data, predictable patterns are found in the geography-based import and export statistics. In 2014, we began publishing seasonal and trading day adjusted merchandise trade data by select countries and world areas. Where appropriate, data are adjusted for moving holiday effects, such as Easter or Chinese New Year. Unlike commodity-based adjustments discussed above, these adjustments are developed and applied directly at the country and world area level. Data are published for twelve individual countries and five world areas that represent our major trading partners.

## **C. Adjustment for Price Change**

The Census Bureau also publishes trade data on a chained dollar basis. The adjusted data provide an estimate of the change in the volume of trade, as distinct from value changes resulting from price shifts. In 2003, the Census Bureau transitioned from the current weighted basis methodology to adjust data and adopted the chain-weighted Fisher basis used by the BEA in the National Income and Product Accounts (NIPA). The Census Bureau bases the adjustments on the International Price Indexes (IPI), the U.S. Producer Price Indexes (PPI), and the Import Trade Data Unit Price Indexes. The IPI, U.S. Import Price Indexes (MPI), U.S. Export Price Indexes (XPI), and PPI are published by the Bureau of Labor Statistics (BLS). Weights and seasonal adjustment factors provided by the BEA are also used in the process of adjusting the data.

For more information on the price adjustments, see “Adjustment of U.S. Merchandise Trade Data for Price Change” (available on the Internet at [www.census.gov/foreign-trade/aip/priceadj.html](http://www.census.gov/foreign-trade/aip/priceadj.html)) or contact the Census Bureau at (301) 763-3251).

## **D. Seasonal Adjustment of Chained Dollars**

Effective with January 2012 statistics, the Census Bureau began seasonally adjusting selected export and import prices. These prices are used in calculating the chained dollar statistics. This change improves the quality of the chained dollars by removing identifiable seasonal patterns and improves the consistency between the Census Bureau chained dollar data and the chained dollar data published by the BEA in the NIPA.

For more information, see “Seasonal Adjustment of Chained Dollars” (available at [www.census.gov/foreign-trade/aip/seasonalcchain.html](http://www.census.gov/foreign-trade/aip/seasonalcchain.html)) or contact the Census Bureau at (301) 763-3251).

## **V. Conclusion**

The merchandise trade statistics program was originally designed to meet the basic needs of policy makers and provide reasonable estimates of total trade with other countries. However, the program has grown in scope and complexity, attempting to meet the needs of many different data user groups. For example, the program collects transportation data for air and vessel carriers, port authorities and the Department of Transportation. It also collects detailed commodity information for trade associations, marketing analysts and government agencies investigating the impact of international trade on local industry and economies.

The needs of data users expand and change continuously. The Census Bureau and CBP strive to provide accurate and complete information for all data users. Realistically, however, the program meets the needs of some data users better than others.

To address the concerns of these many data users, the Census Bureau will continue to release periodic quality profiles. These profiles will include the results of studies conducted to assess the quality of the data and any reports on the results of quality assurance programs. The profiles also will describe any changes in the programs that may affect the quality of the statistics. In this way, the Census Bureau strives to provide the information and knowledge needed to make its many data users "educated consumers" of the merchandise trade data.

Appendix  
Glossary of Acronyms

ABI - Automated Broker Interface

ACE - Automated Commercial Environment

AES - Automated Export System

BEA - Bureau of Economic Analysis

BIS - Bureau of Industry and Security

BLS - Bureau of Labor Statistics

CBP - Customs and Border Protection

EEI - Electronic Export Information

EEP - Exporter Education Program

FTZ - Foreign Trade Zone

GDP - Gross Domestic Product

HTS - Harmonized Tariff Schedule

IPI - International Price Indexes

NIPA - National Income and Product Accounts

PPI - Producer Price Indexes