EXPLANATION OF REVISIONS

Not adjusted estimates of monthly sales are revised for January 2011 through February or March 2014[1] (if an advance sales estimate is computed), as well as end-of-month inventory estimates for January 2005 through February 2014. Not adjusted estimates of quarterly retail e-commerce sales are revised for fourth quarter 1999 through fourth quarter 2013.

Revised quarterly retail e-commerce sales estimates will be available in the 1st Quarter 2014 Quarterly E-commerce Sales Report scheduled to be released on May 15, 2014.

Revisions to not adjusted estimates were made in two parts:

First, revisions were made to prior Monthly Retail Trade estimates to reflect historical corrections. Then, revisions were made when benchmarking the Monthly Retail Trade estimates to the 2012 Annual Retail Trade estimates. Revisions to seasonally adjusted estimates were made based on the revised not adjusted estimates and revised seasonal adjustment factors

Reasons for Revisions

We revised the not adjusted estimates to:

- Reflect corrections to data for the current MRTS and ARTS samples. Corrections are made to replace previously reported data with more accurate data received at a later date or to replace imputed data with reported data obtained from the company.

- Introduce the results from the 2012 ARTS, which has been benchmarked using the final results of the 2007 Economic Census.

- Link the previously published estimates from the prior MRTS sample to estimate from the current MRTS sample.

- Reinstate the previously suppressed not adjusted estimates of sales for NAICS 44221 (Floor Covering Stores) from 2012 forward. Monthly sales estimates for 2012 were revised via benchmarking to the 2012 ARTS results. Additionally, estimates from 2013 forward were analyzed and validated.

We revise the seasonally adjusted estimates to:

- Reflect revision to the not adjusted estimates.

- Incorporate changes to the seasonal adjustemen factors based on the annual review of the seasonal adjustment models.

- Reinstate the previously suppressed seasonally adjusted estimates of sales for NAICS 44811 (Men's Clothing) from January 2001 forward. Factors for NAICS 44811 were computed and used to adjust sales for August 2006 through February 2014 to reflect a change in the seasonal pattern. With this change, the corresponding aggregrates are revised back to August 2006. For more information, see the Seasonal Adjustment Estimates section.

Benchmarking to 2012 ARTS estimates

There are several reasons for benchmarking estimates from the Monthly Retail Trade Survey to the Annual Retail Trade Survey:

- **Timing**. The respondents have more time to prepare their annual and census reports than they do for their monthly reports. The annual and census responses are requested at a time when many firms have already compiled audited book figures for their own use. The timing of the annual survey is such that we are also able to obtain independent verification of the reported data from such sources as a company's annual report. On the other hand, respondents to the monthly survey have just a few weeks to provide reports of their sales and end-of-month inventories. Sometimes these reports are based on incomplete or unaudited records and may include estimates made by respondents to represent their understanding of their business.

- **Sampling.** As described in more detail in the Technical Documentation, the estimates derived from the annual survey are based on a sample that is much larger than the samples used to produce the monthly sales or inventory estimates. MRTS estimates are benchmarked to the results from the 2012 ARTS, which have been indirectly benchmarked using the final results of the 2007 Economic Census. See ARTS methodology page for more information http://www.census.gov/retail/arts/how_surveys_are_collected.html.

- **Response.** The annual estimates are based on more reported data than are the monthly estimates. The response to the ARTS is required by law, while the MRTS is voluntary. This requirement results in a total quantity response rate (TQRR) of 93 percent for sales and 93 percent for inventories and a rate of approximately 72 percent for sales and 69 percent for inventories for MRTS. An imputation process accounts for the sales and inventories data that fail edits or are missing because of nonresponse. For MRTS, this process assumes that nonresponding firms have similar month-to-month changes to the responding firms of a similar size in the same industry. However, the ARTS imputation process relies heavily on administrative data and relationships of these data for each individual firm, which could result in different data being tabulated for the MRTS and ARTS for nonresponding firms.

Estimates of Monthly Sales

For each detailed NAICS code, the monthly retail and food service sales estimates for January 1992 (the beginning of the series) through February 2013 are linked to the estimates derived from the current sample. The linkage is performed at each detailed NAICS level by multiplying the sample-based estimates prior to March 2013 by a geometric mean. The geometric mean is computed as the square root of the product of two ratios. The numerators of the ratios are the Horvitz-Thompson sales estimates for February and March 2013 from the current sample. The denominators of the ratios are the Horvitz-Thompson estimates for February and March 2013 from the prior sample.

After performing the above linkage, the resulting sales estimates for December 2010 through February 2014 are input to the benchmarking program. The estimates for a given detailed NAICS code are revised in a manner that—

- For 2011 through 2012, constrains the sum of the 12 monthly sales estimates to equal the corresponding annual sales estimate from ARTS.
- Minimizes the sum of the squared differences between the month-to-month changes of the input and revised estimates for December 2010 through February 2014.
- Uses the previously published December 2010 sales estimate as a constraint, linking the revised estimates to the previously published sales estimates and resulting in no revision to the December 2010 estimate.

A mathematical result of the benchmarking methodology is that, for a given NAICS code, all published monthly sales estimates after December 2012 are derived by multiplying the Horvitz-Thompson estimates by the ratio of the benchmarked-to-input estimate for December 2012. This ratio, which is called a carry-forward factor, remains the same and is used to derive published monthly sales estimates until the next benchmarking operation.

If a March 2014 advance sales estimate is computed for an industry, the estimate may also be revised based on historical corrections made to data for February or March 2014. For more information on how advance estimates are computed, see the Census Bureau Web site at http://www.census.gov/retail/marts/how_surveys_are_collected.html.

Revised estimates for aggregate industry levels are computed by summing the revised estimates for the appropriate detailed industries comprising the aggregate.

Estimates of End-of-Month Inventories

For each detailed NAICS code, the end-of-month inventory estimates for

January 1992 (the beginning of the series) through February 2013 are linked to the estimates derived from the current sample. The linkage is performed using a procedure similar to the one used for sales, except the geometric mean is based on end-of-month inventory.

After performing the above linkage, the resulting end-of-month inventory estimates for December 2004 through February 2014 are input to the benchmarking program. The estimates for a given detailed NAICS code are revised in a manner that—

- For 2004 through 2012, constrains the December end-of-month inventory estimates from MRTS to equal the end-of-year inventory estimates derived from ARTS.
- Minimizes the sum of squared differences between the month-to-month changes of the input and revised estimates for December 2004 through February 2014.
- Uses the previously published December 2004 estimate as a constraint, linking the revised estimates to the previously published estimates and resulting in no revision to the December 2004 estimate.

For a given detailed NAICS code, end-of-month inventory estimates subsequent to December 2012 are derived by multiplying the input estimates by the ratio of the benchmarked-to-input estimate for December 2012. This ratio is the carry-forward factor for inventory, and it remains the same until the next benchmarking operation.

Revised estimates for aggregate industry levels are computed by summing the revised estimates for the appropriate detailed industries comprising the aggregate.

Estimates of Quarterly E-commerce Sales

For select detail NAICS codes (usually at the 3-digit NAICS level), quarterly retail e-commerce sales estimates for fourth quarter 1999 through fourth quarter 2012 are linked to the estimates derived from the current sample. The linkage is performed at these select detail levels by multiplying the sample-based estimates prior to first quarter 2014 by a ratio. The numerators of the ratios are the Horvitz-Thompson e-commerce sales estimates for first quarter 2013 from the current sample. The denominators of the ratios are the Horvitz-Thompson e-commerce sales estimates for first quarter 2013 from the prior sample. Monthly e-commerce estimates are also linked at these select detail levels using a procedure similar to the one used for sales, except the geometric mean is based on monthly e-commerce sales estimates.

After performing the above linkage, the resulting e-commerce sales estimates for fourth quarter 1999 through fourth quarter 2013 are input to the benchmarking program. The estimates for the select detailed NAICS code are revised in a manner that—

- For 2000 through 2012, constrains the sum of the 4 quarterly e-commerce sales estimates to equal the corresponding annual sales estimate from ARTS.

- Minimizes the sum of squared differences between the quarter-to-quarter changes of the input and revised estimates for fourth quarter 1999 through fourth quarter 2013.

Similarly, the monthly e-commerce sales estimates at these select detail levels for October 1999 through February 2013 are input into the benchmarking program. These estimates for the select detail levels are revised in a manner that—

- For fourth quarter 1999 through fourth quarter 2013, constrains the sum of the 3 months in a given quarter to equal the corresponding quarterly e-commerce sales estimate which has been benchmarked to ARTS.

- Minimizes the sum of squared differences between the month-to-month changes of the input and revised estimates for October 1999 through February 2014.

For select detailed NAICS levels, monthly e-commerce sales estimates subsequent to February 2014 will be derived by multiplying the input estimates by the ratio of the benchmarked-to-input estimate for fourth quarter 2012. This ratio is the carry-forward factor for e-commerce sales, and it remains the same until the next benchmarking operation.

The revised estimates for the total retail quarterly e-commerce sales are computed by summing the revised estimates for the appropriate detailed industries comprising the aggregate.

Seasonally Adjusted Estimates

With the exception of NAICS 44811 (Men's Clothing Stores), new seasonal, trading-day, and holiday factors are computed and used to adjust sales for January 2008 through February or March 2014 (if an advance sales estimate is computed). Factors for NAICS 44811 were computed and used to adjust sales for August 2006 through February 2014 to reflect a change in the seasonal pattern. Previously suppressed seasonally adjusted estimates of sales for NAICS 44811 from January 2001 forward will no longer be suppressed. For inventories, new seasonal factors are computed and used to adjust inventories for January 2002 through February 2014. For quarterly e-commerce sales, new seasonal factors are computed and used to adjust e-commerce sales for fourth quarter 1999 through fourth quarter 2013. For sales, inventories, and e-commerce sales, the new seasonal factors are computed using the revised unadjusted estimates as input to the

Census Bureau's X-13ARIMA-SEATS software and using the X-11 filter-based adjustment procedure.

REVISIONS OF SALES AND INVENTORIES

The following table shows a comparison of the revised sales and inventories to the previously published estimates for 2013:

2013 Retail and Food Services Sales and Retail Inventories Comparison of the Revised Estimates to the Previously Published Estimates

DEFINITION OF TERMS

Dollar Values

All dollar values presented are expressed in current dollars; that is, the estimates are not adjusted to a constant dollar series. Consequently, when comparing estimates to prior years, users also should consider price level changes.

Confidentiality

Title 13 of the United States Code authorizes the Census Bureau to conduct censuses and surveys. Section 9 of the same Title requires that any information collected from the public under the authority of Title 13 be maintained as confidential. Section 214 of Title 13 and Sections 3559 and 3571 of Title 18 of the United States Code provide for the imposition of penalties of up to 5 years in prison and/or up to $250,000 in fines for wrongful disclosure of confidential census information. In accordance with Title 13, no estimates are published that would disclose the operations of an individual firm.

The Census Bureau's Internal Disclosure Review board sets the confidentiality rules for all data releases. A checklist approach is used to ensure that all potential risks to the confidentiality of the data are considered and addressed.

Disclosure Limitation

A disclosure of data occurs when an individual can use published statistical information to identify either an individual or firm that has provided information under a pledge of confidentiality. Disclosure limitation is the process used to protect the confidentiality of the survey data provided by an individual or firm. Using disclosure limitation procedures, the Census Bureau modifies or removes the characteristics that put confidential information at risk for disclosure. Although it may appear that a table shows information about a specific individual or business, the Census Bureau has taken steps to disguise or suppress the original data, while making sure the results are still useful. The techniques used by the Census Bureau to protect confidentiality in tabulations vary, depending on the type of data.

Unpublished Estimates

It should be noted that some unpublished estimates can be derived directly from this report by subtracting published estimates from their respective totals. However, the estimates obtained by such subtraction would be subject to the poor response rates or high sampling variability.
Individuals who use estimates in this report to create new estimates should cite the Census Bureau as the source of only the original estimates.

Adjustment Factors

The X-13ARIMA-SEATS program (version 1.1, build 10) was used to derive the factors for adjusting estimates for seasonal variations and, in the case of sales, for trading-day and holiday differences. Not adjusted sales and inventory estimates for January 1992 through February or March 2014[1] (if an advance sales estimate was computed) were input to this program.

Seasonal adjustment of estimates is an approximation based on current and past experiences. Therefore, the adjustment could become less precise because of changes in economic conditions and other elements that introduce significant changes in seasonal, trading-day, or holiday patterns.

Sales

Sales include merchandise sold (for cash or credit at retail or wholesale) by establishments primarily engaged in retail trade. Services that are incidental to the sale of merchandise, and excise taxes that are paid by the manufacturer or wholesaler and passed along to the retailer are also included. Sales are net, after deductions, for refunds and allowances for merchandise returned by customers. Sales exclude sales taxes collected directly from customers and paid directly to a local, state, or federal tax agency.

The estimates of sales measure the operations receipts rendered by stores that primarily sell at retail. The sales estimates represent total sales and receipts of all establishments primarily engaged in retail trade. They do not include sales at retail by manufacturers, wholesalers, service establishments, and others whose primary activity is other than retail trade. Because the retail establishment is the basic unit of measure, the published estimates of sales by type of retail store are not intended to measure the total sales for a given commodity or merchandise line.

Inventories

Merchandise inventories are the value of stocks of goods held for sale. The inventories estimates represent the value, at cost, of the merchandise available for sale as of the last day of the report period. Methods of valuation may vary according to the accounting practices of each firm. The estimates provided in this report are valued on a non-LIFO (last in, first out) basis. Note—LIFO is a method of valuing inventory where the latest items of merchandise added to the inventory are the first ones taken out. Non-LIFO would mean that another method, such as FIFO (first in, first out), was used to establish the value of the inventory available for sale. Merchandise inventories are shown for stores and warehouses servicing retail establishments. Included are only those warehouses that maintained supplies of merchandise primarily intended for distribution within the organization.

Inventories/ Sales Ratios

The inventories/ sales ratios show the relationship of the end-of-month values of inventory to the monthly sales. These ratios can be looked at as indications of the number of months of inventory that are on hand in relation to the sales for a month. For example, a ratio of 2.5 would indicate that the retail stores have enough merchandise on hand to cover two and a half months of sales.

E-Commerce

E-commerce is the sale of goods and services where the buyer places an order, or the price and terms of the sale are negotiated over an Internet, mobile device (M-Commerce), extranet, EDI network, electronic mail or other online system. Transactions are agreements between buyers and sellers to transfer ownership of, or rights to use, goods or services. Payment for these goods and services may or may not be made online.

Leased Department

Leased departments are broadly defined as operations of one company conducted within the establishment of another company. Typical examples may include jewelry counters or optical centers within department stores.

GAFO

GAFO represents sales at stores that sell merchandise normally sold in department stores. GAFO includes the following kinds of retail businesses:

- General merchandise stores (NAICS 452).
- Clothing and clothing accessories stores (NAICS 448).
- Furniture and home furnishings stores (NAICS 442).
- Electronics and appliance stores (NAICS 443).
- Sporting goods, hobby, book, and music stores (NAICS 451).
- Office supplies, stationery, and gift stores (NAICS 4532).

ADDITIONAL INFORMATION

Survey Questionnaires

The ARTS questionnaires can be found on the Census Bureau Web site at http://www.census.gov/retail/arts/get_forms.html. The MRTS questionnaires can be found on the Census Bureau's Web site at http://www.census.gov/retail/mrts/get_forms.html.

1 Advance sales estimates are computed for selected kinds of business and are based on a small subsample selected from the larger MRTS sample.

Related Links:

Advance Monthly Retail Trade & Food Services
Monthly Retail Trade Survey
Annual Retail Trade Survey
E-Stats – Measuring the Electronic Economy

Source: Retail Indicators Branch, U.S. Census Bureau
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