## INTRODUCTION

The U.S. Census Bureau produces the *Annual Revision of Monthly Retail and Food Services* to provide revised national estimates by kind of business of monthly sales for establishments classified in the retail trade and food services industries. Revised estimates of end-of-month inventories and inventory-to-sales ratios are also provided, but only for retail trade.

We develop the estimates in this report using data from the *Advance Monthly Retail Trade and Food Services Survey* (MARTS), *Monthly Retail Trade Survey* (MRTS), *Annual Retail Trade Survey* (ARTS), and administrative records. For each survey, questionnaires are mailed to a probability sample of firms located in the United States and having paid employees. The samples are updated regularly and periodically reselected. These samples include firms of all sizes. Firms without paid employees (nonemployers) are included in the ARTS estimates through administrative data provided by other Federal agencies and through imputation. Nonemployers are represented in the monthly retail estimates via the procedure used to benchmark the monthly estimates using ARTS results.

Additional information on MARTS, MRTS, and ARTS can be found on the Census Bureau Web site at <http://www.census.gov/retail>.

## COVERAGE

The estimates in this publication are summarized by industry classification based on the *2007 North American Industry Classification System* (NAICS). NAICS groups establishments into industries based on the activities in which they are primarily engaged. This system, developed jointly by the statistical agencies of Canada, Mexico, and the United States, allows for comparisons of business activity across North America.

Retail trade, as defined by NAICS sectors 44-45, includes establishments engaged in selling merchandise in small quantities to the general public, without transformation, and rendering services incidental to the sale of merchandise. Two principal types of establishments classified in retail trade are distinguished:

1. Store retailers operate fixed point-of-sale locations, located and designed to attract a high volume of walk-in customers. They have extensive displays of merchandise, use mass-media advertising to attract customers and typically sell merchandise to the general public for personal or household use. Some store

retailers also provide after-sales services, such as repair and installation; for example, new automobile dealers.

2. Nonstore retailers also serve the general public, but their retailing methods differ. Such methods include paper and electronic catalogs, door-to-door solicitation, in-home demonstration, ‘‘infomercials,’’ selling from portable stalls or through vending machines.

Food services, as defined by NAICS subsector 722, include establishments that prepare meals, snacks, and beverages to customer order for immediate on-premises and off-premises consumption.

A summary of changes from the prior report and the procedures for producing the revised estimates are described below.

## REVISIONS TO PREVIOUSLY PUBLISHED ESTIMATES

### Not Adjusted Estimates

Not adjusted estimates of monthly sales are revised for January 2003 through February or March 2010[1] (if an advance sales estimate is computed), as well as end-of-month inventory estimates for January 1999 through February 2010. We revised the not adjusted estimates to:

• Reflect corrections to data for the current MARTS, MRTS, and ARTS samples, including a revision to annual nonemployer sales data for 2007 to reflect the availability of data from administrative records provided by other Federal agencies.

• Introduce results from the 2008 ARTS.

• Introduce preliminary results from the 2007 Economic Census.

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

### Estimates of Monthly Sales

For select detailed NAICS codes, corrections are applied to the monthly retail and food service sales estimates for August 2006 through February 2010. Then, for each detailed NAICS code, the monthly retail and food service sales estimates for January 1992 (the beginning of the series) through August 2006 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 September 2006 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 August and September 2006 from the current sample. The denominators of the ratios are the Horvitz-Thompson estimates for August and September 2006 from the prior sample.

After performing the above linkage, the resulting sales estimates for December 2002 through February 2010 are input to the benchmarking program. The estimates for a given detailed NAICS code are revised in a manner that—

• For 2003 through 2008, 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 2002 through February 2010.

• Uses the previously published December 2002 sales estimate as a constraint, linking the revised estimates to the previously published sales estimates and resulting in no revision to the December 2002 estimate.

If a March 2010 advanced sales estimate is computed for an industry, the estimate may also be revised based on historical corrections made to data for February or March 2010. 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>.

A mathematical result of the benchmarking methodology is that all revised estimates following the end of the last benchmark year (2008) are derived by multiplying the corresponding input estimates by the ratio of the benchmarked-to-input estimate for the last month of the last benchmark year. Therefore, for a given NAICS code, a ratio of the benchmarked-to-input estimate for December 2008 is computed. Monthly sales estimates after December 2008 are multiplied by this constant ratio, which is called a carry-forward factor, to derive published monthly sales estimates. The carry-forward factor 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 End-of-Month Inventories

For select detailed NAICS codes, corrections are applied to the retail end-of-month inventory estimates for August 2006 through February 2010. Then, for each detailed NAICS code, the end-of-month inventory estimates for January 1992 (the beginning of the series) through August 2006 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 1998 through February 2010 are input to the benchmarking program. The estimates for a given detailed NAICS code are revised in a manner that—

• For 1998 through 2008, 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 1998 through February 2010.

• Uses the previously published December 1998 estimate as a constraint, linking the revised estimates to the previously published estimates and resulting in no revision to the December 1998 estimate.

For a given detailed NAICS code, end-of-month inventory estimates subsequent to December 2008 are derived by multiplying the input estimates by the ratio of the benchmarked-to-input estimate for December 2008. 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.

## Seasonally Adjusted Estimates

New seasonal, trading-day, and holiday factors are computed and used to adjust sales for January 2000 through January 2010. For inventories, new seasonal factors are computed and used to adjust inventories for January 1996 through January 2010. Adjusted estimates start three years before the revised unadjusted estimates because the revised unadjusted estimates may have a non-ignorable effect on the computation of seasonal factors as far back as three years ago. For both sales and inventories, the new seasonal factors are computed using the revised unadjusted estimates as input to the seasonal adjustment program.

## REVISIONS OF SALES AND INVENTORIES

The following table shows a comparison of the revised sales and inventories to the previously published estimates for 2009:

2009 Retail and Food Services Sales and Retail Inventories Comparison of the Revised Estimates to the Previously Published Estimates

## Reasons for Revisions

There are several reasons for revisions. The main contributors to the revision from the previously published estimates are:

- **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 section of this report, 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.

- **Response.** The annual estimates are based on more reported data than are the monthly estimates. The response to the ARTS is required by law. This requirement results in a dollar volume response rate of 93 percent for sales and 92 percent for inventories. The response to our monthly survey is not mandatory. The dollar volume response rates for the monthly surveys are usually around 78 percent for sales and 72 percent for inventories. The sales and inventories for the nonresponding retailers are accounted for by an imputation process. This process on the monthly surveys assumes that nonresponding firms have trends similar to the responding firms in their respective kinds of business.

# 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-12 ARIMA program 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 2010[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.

## 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

### E-Commerce Data

Data for e-commerce sales and electronic data interchange (EDI) can be found on the Census Bureau Web site at<http://www.census.gov/econ/estats>.

### 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>.

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

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**Related Links:**

Monthly Retail Trade Survey
Annual Retail Trade Survey
Advance Monthly Retail Trade & Food Services

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