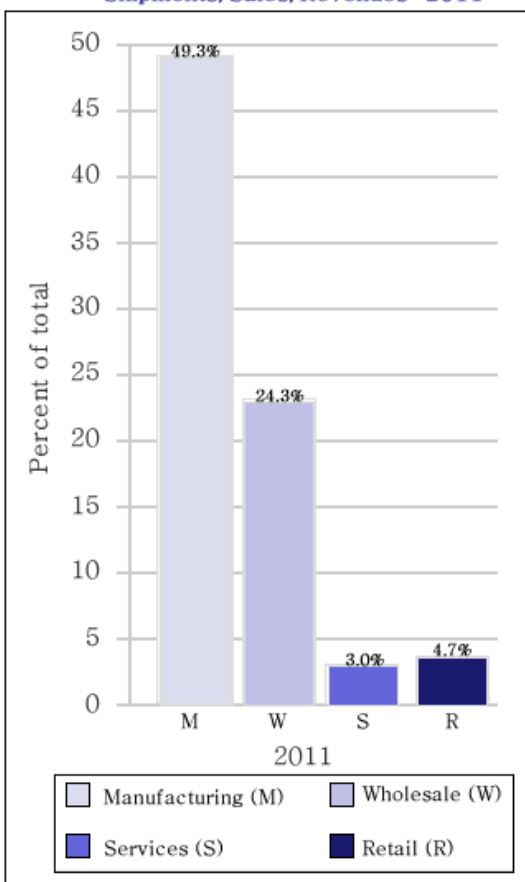




2011 E-Stats

This edition of E-Stats provides estimates of e-commerce activity in key sectors of the U.S. economy for 2011, revises previously released estimates for 2010 and earlier, and places these estimates in historical context. Underlying data are collected in four separate surveys from manufacturing, wholesale, service, and retail businesses.

E-Commerce as Percent of Total Shipments/Sales/Revenues: 2011



Manufacturing (Table 1)

- U.S. manufacturers reported e-commerce shipments were \$2.7 trillion in 2011, up 15.3 percent from a revised \$2.4 trillion in 2010. Total shipments were \$5.5 trillion in 2011,

up 12.1 percent from a revised \$4.9 trillion in 2010.

- E-commerce shipments approached half of all manufacturing shipments as e-commerce shipments were 49.3 percent of all manufacturing shipments in 2011, up from a revised 47.9 percent in 2010.
- In 2011, five North American Industry Classification System (NAICS) sub-sectors had e-commerce shipments that accounted for more than 50 percent of their total manufacturing shipments: NAICS 312, Beverage and tobacco product manufacturing, NAICS 336, Transportation equipment manufacturing, NAICS 324, Petroleum and coal products manufacturing, NAICS 331, Primary metal manufacturing, and NAICS 334, Computer and electronic product manufacturing.

Wholesale (Tables 2.0, 2.1, 2.2)

- U.S. merchant wholesalers including Manufacturers' Sales Branches and Offices (MSBOs) reported total e-commerce sales of \$1.6 trillion in 2011, up 10.2 percent from a revised \$1.4 trillion in 2010. Total sales increased by 12.4 percent to \$6.5 trillion in 2011 from a revised \$5.8 trillion in 2010.
- E-commerce sales were 24.3 percent of merchant wholesalers, including MSBOs, total sales in 2011 which was not significantly different from a revised 24.8 percent in 2010.
- E-commerce sales accounted for 17.8 percent of the sales of merchant wholesalers, excluding MSBOs, in 2011 while e-commerce was 41.7 percent of the sales of manufacturers' sales branches and offices.

Services (Table 3)

- U.S. selected service industries reported e-commerce revenues were \$346 billion in 2011, up 12.9 percent from a revised \$307 billion in 2010. Total revenues were \$11.5 trillion in 2011, up 3.4 percent from a revised \$11.2 trillion in 2010.
- E-commerce revenues were 3.0 percent of total revenues in 2011, up from a revised 2.7 percent in 2010.

Retail (Tables 4, 5)

- U.S. retailers reported e-commerce sales were \$194 billion in 2011, up 16.4 percent from a revised \$167 billion in 2010. Total sales increased by 7.7 percent to \$4.1 trillion in 2011 from a revised \$3.8 trillion in 2010.
- E-commerce sales were 4.7 percent of total sales in 2011, up from a revised 4.3 percent in 2010.
- In 2011, the largest retail merchandise category for e-commerce sales in the Electronic Shopping and Mail-Order Houses industry (NAICS 4541) was Clothing and Clothing Accessories (including footwear) with \$27 billion.

Explanatory Notes

General

The estimates in this release are based on data collected from four surveys conducted by the U.S. Census Bureau: the 2011 Annual Survey of Manufactures (ASM), the 2011 Annual Wholesale Trade Survey (AWTS), the 2011 Service Annual Survey (SAS), and the 2011 Annual Retail Trade Survey (ARTS). All of these surveys were conducted independently. Measures of total economic activity and e-commerce are presented in this report to provide a broad perspective of e-commerce activity

across the many sectors. Brief descriptions of the survey methods are given below.

Industry classifications used in this report are based on the 2007 NAICS. Information about NAICS and additional detail about coverage, sample design, and estimation methodology for the annual surveys may be found online at www.census.gov/estats. In addition, all current and prior reports, historical data tables, and past research papers are available at this same website.

Different measures of economic activity are used in the four surveys:

ASM. "Value of Shipments" is the measure used in the ASM. It is the value of all products shipped plus all miscellaneous receipts. Value of shipments includes shipments to outside customers as well as to affiliated plants.

AWTS and ARTS. "Sales" is the measure used in AWTS and ARTS. Sales are the dollar value of transactions between the reporting firm and its customers. Sales include transactions to foreign affiliates, but exclude transactions among domestic affiliates.

SAS. "Revenues" is the measure used in SAS. Revenues are the dollar value of transactions and contracts between the reporting firm and its customers. These values include services performed for foreign affiliates, but exclude transactions among domestic affiliates. Revenue includes the total value of service contracts, the market value of compensation received in lieu of cash, amounts received for work subcontracted to others and other industry-specific items.

E-commerce sales/revenue are sales 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, Electronic Data Interchange (EDI) network, electronic mail, or other comparable online system. Payment may or may not be made online.

E-commerce shipments (E-shipments) are online orders accepted for manufactured products from customers, including shipments to other domestic plants of the same company for further manufacture, assembly, or fabrication where price and terms of sale are negotiated over an Internet, Extranet, Electronic Data Interchange (EDI) network, electronic mail, or other online system. Payment may or may not be made online.

Survey Methods

Annual Survey of Manufactures

The 2011 estimates of manufacturing shipments and e-shipments were derived from the 2011 ASM. In the ASM, data are collected annually from a probability sample of approximately 50,000 manufacturing plants. Data for small- and medium-sized single establishment companies are estimated using information obtained from administrative sources.

The ASM is a survey of manufacturing plants and represents activities at individual plants rather than the entire company.

E-commerce questions were included on the ASM questionnaires along with questions about such things as employment, payroll, value of shipments, cost of materials consumed, and capital expenditures. Data for non-responding plants were imputed using information from responding plants with similar characteristics.

Shipments estimates for the NAICS subsectors were calculated by summing both the reported and the imputed plant data. For each plant, the data were weighted by the reciprocal of the probability of the plant's inclusion in the ASM sample. These estimates were then linked to the 2007 Economic Census results to reduce sampling and non-sampling errors.

Annual Wholesale Trade Survey, Service Annual Survey, Annual Retail Trade Survey

The AWTS measures the economic activity of merchant wholesale firms with paid employees (i.e., employer firms) including manufacturers' sales branches and offices (MSBOs) as defined by the 2007 NAICS. Merchant wholesale firms

are those that take title to the goods they sell. The AWTS also collects data from wholesale agents and brokers, but e-commerce sales are not requested. Therefore, agents and brokers are not included in the wholesale E-Stats estimates. Data are requested annually from about 8,000 merchant wholesale firms, which include approximately 1,000 MSBOs. Data for MSBOs were first collected with the 2003 AWTS for years 2002 and 2003. For more information about AWTS, see www.census.gov/wholesale.

The SAS measures the economic activity of employer firms classified in 11 service-related sectors as defined by the 2007 NAICS: Utilities; Transportation and Warehousing; Information; Finance and Insurance; Real Estate and Rental and Leasing; Professional, Scientific, and Technical Services; Administrative and Support and Waste Management and Remediation Services; Educational Services; Health Care and Social Assistance; Arts, Entertainment and Recreation; and Other Services. Data are requested annually from about 72,000 firms. For more information about SAS, see www.census.gov/services.

The ARTS measures the economic activity of employer and nonemployer (i.e., business without paid employees) firms classified in Retail Trade or Accommodation and Food Services as defined by the 2007 NAICS. The sample contains approximately 22,000 firms with paid employees; roughly 17,500 that are classified in Retail Trade and 4,500 that are classified in Accommodation and Food Services. Data for nonemployers are included in the estimates through imputation or administrative data provided by other federal agencies. For more information about ARTS, see www.census.gov/retail.

For these three surveys, stratified random samples of firms are selected from a sampling frame constructed using information from the 2007 Economic Census and updated with information from the Census Bureau's Business Register. The samples are subsequently updated to represent employer firms in business

during 2011.

All wholesale, service, and retail firms surveyed are asked to report total and e-sales/e-revenue for 2011. Wholesalers are also asked to report e-sales made through EDI networks. Retailers in the Electronic Shopping and Mail-Order Houses industry are also asked to report total sales and e-sales for 2011 for specific merchandise lines. E-commerce data for nonresponding employer firms and all retail nonemployers were imputed from responding firms within the same kind of business.

Estimates of total sales/revenues and e-sales/e-revenues were calculated by summing data (both reported and imputed) weighted by the reciprocal of the probability of the firm's inclusion in the appropriate sample. The retail, wholesale, and services estimates in this report have been adjusted using final results of the 2007 Economic Census to reduce sampling error and to allow comparability with the census results.

Reliability of Estimates

The estimates in this report are based on sample surveys and are subject to sampling error. All estimates in this report are subject to nonsampling error. Sampling error occurs because only a subset of the entire population is measured. Nonsampling error encompasses all other factors that contribute to the total error of a sample survey estimate and may also occur in censuses.

Appendix Tables 1A through 6A show standard errors for estimates of percentages and coefficients of variation for estimates of total dollar value. The standard error measures the extent to which estimates derived from all possible samples of the same size drawn using the same design differs from the average of these estimates. The coefficient of variation (expressed as a percentage) is the standard error of the estimate divided by the estimate. Note that standard errors and coefficients of variation are estimates derived from the sample and are also subject to sampling error. The

coefficients of variation and standard errors presented in the tables may be used to compute confidence intervals about the sample estimates.

The particular sample used for each survey included in this report is one of a large number of samples of the same size that could have been selected using the same design. For ASM, we estimate sampling variances using the Poisson variance estimator rather than the method of random groups. In about 9 out of 10 (90 percent) of the possible samples, the estimates would differ from the results of a complete enumeration by less than 1.645 times the estimated standard error. For AWTS, ARTS, and SAS, we use the method of random groups ($G=16$ random groups) to estimate sampling variances for estimates produced from these samples. In about 9 out of 10 (90 percent) of the possible samples, the estimates would differ from the results of a complete enumeration by less than 1.753 (a t -statistic with 15 ($G-1$) degrees of freedom) times the estimated standard error.

To compute a 90 percent confidence interval for an estimated total, multiply the estimate by its coefficient of variation and then by either 1.753 or 1.645, as indicated above. This amount is then added to and subtracted from the estimate to give the upper and lower bounds of the interval. As an example, suppose the estimated total revenue is \$51,770 million and the estimated coefficient of variation for this estimate is 1.3 percent (0.013). Multiplying \$51,770 million by 0.013 and by 1.753 gives \$1,180 million. Subtracting \$1,180 million from and adding \$1,180 million to \$51,770 million gives a 90 percent confidence interval of \$50,590 million to \$52,950 million. Confidence statements for estimated percentages are computed in a similar manner. The Census Bureau recommends that individuals using estimates in this report incorporate this information into their analyses, as sampling error could affect the conclusions drawn from these estimates. All comparative statements in this

report have undergone statistical testing, and, unless otherwise noted, comparisons are statistically significant at the 90 percent confidence level.

One source of nonsampling error is the inability to obtain information about all cases in the samples.

Economic surveys at the Census Bureau are required to compute two different types of response rates: a unit response rate and weighted item response rates. Refer to each survey's Internet page (links provided above) for the unit response rates of the surveys that contribute to this report. The weighted item response rates are called Total Quantity Response Rates (TQRR) and are item-level indicators of the quality of each estimate. The following table shows the TQRRs for e-commerce activity for the sectors included in this report. More detailed information about calculating and reporting response rates for economic surveys can be found at:

www.census.gov/quality/standards/appendixd3b.html.

Total Quantity Response Rate for 2011 Total Shipments/Sales/Revenues and E-commerce

Sector	Total Sales	E-commerce Sales
Manufacturing	81.8	81.1
Wholesale	88.3	67.4
Retail	94.2	84.1
Services	90.9	78.1

Other sources of nonsampling error include response errors, unclear definitions, differences in the interpretation of questions, mistakes in recording or coding the data obtained, and other errors of collection, response, coverage, and estimation of missing data. Although no direct measures of these sources of nonsampling error have been obtained, precautionary steps were

taken in all phases of the collection, processing, and tabulation of the data in an effort to minimize their influence.

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E-Stats Reports

Future Reports

- Quarterly retail e-commerce data will be released August 15, and November 18, 2013.
- *E-Stats* for 2012 will be released in mid-2014.

Prior Reports, Historical Data Tables, and Research Papers

All E-Stats reports, including prior reports, historical data tables, and past research papers, are available at www.census.gov/estats.