Industry Insights

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Deconstructing the Census Bureau's Retail Trade E-Commerce Figures

How Omni-Channel Retailers are Driving Internet Sales

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Lessons Learned

The following points represent the primary takeaways from ICSC's in-depth look into retail trade and e-commerce statistics reported by the U.S. Census Bureau. These data are based on store categories in the North American Industry Classification System (NAICS).

- Based on data from the *Monthly Retail Trade* Survey, several analysts and the media commonly use sales in the NAICS 4541 industry group (Electronic Shopping and Mail-Order Houses) as a proxy for e-commerce sales. By using those figures, it would appear as though e-commerce accounted for 8.3% of total retail sales in 2014, the latest available year for that breakdown. In actuality, however, it is likely that pure-play Internet sales were closer to 3.3% of total retail sales. The balance predominantly consists of mail-order sales and the online transactions of brick-and-mortar retailers.
- Related to the prior point, in 2014, roughly 34%, or $131.4 billion, of NAICS 4541 sales were due to mail-order houses and, to a much lesser extent, electronic auctions. Of that figure, the vast majority ($75.2 billion) came from mail-order sales of drugs, health and beauty aids. As a comparison, Amazon's 2014 North American net sales were $50.8 billion.
- Using non-Census Bureau sources, one may conservatively estimate that omni-channel sales (online transactions of brick-and-mortar retailers) accounted for around 21%, or $80.7 billion, of 2014 NAICS 4541 sales.
- Based on data from the *Quarterly E-Commerce Report*, about 15%, or $43.9 billion, of the Census Bureau's top-line 2014 e-commerce sales figure was due to physical retailers who exclusively fulfill online orders from in-store inventory. This is in addition to the $80.7 billion in omni-channel sales. (The *Quarterly* publication reports online transactions in all Retail Trade NAICS codes—and not only NAICS 4541. It also excludes mail orders.)
- A significant portion of 2014 NAICS 4541 sales (less mail-order houses and electronic auctions) was also derived from *Nonmerchandise Receipts* (8.9%). These nonrefundable "sales" include customer training and support, advertising and shipping and handling.
- The Census Bureau does not distinguish between domestic and international e-commerce transactions. As such, foreign e-commerce purchases from U.S.-based retailers are included in the Internet sales totals.
- As a comparison, 2015 total e-commerce sales (from the *Quarterly* Report) were roughly equivalent to sales in the NAICS 444 *Building Materials and Garden Equipment and Supplies Dealers* category.
- One must be cautious when making comparisons between growth rates of total retail sales and e-commerce sales, as the latter is calculated off of a much smaller base. By dollar volume, a small increase in total retail sales will dwarf a large increase in e-commerce sales.
- Pure-play e-commerce sales, while still increasing as a percent of total retail sales, are growing at a consistently slower rate.
- **Key Point**: *The Census Bureau's e-commerce figures include sales from both pure-play Internet companies and the online channels of brick-and-mortar retailers. Going forward, as physical retailers continue to build out their synergistic omni-channel strategies, they will be a leading driver of e-commerce sales. As such, far from being a weakness, rising e-commerce sales testify to the strength of retail real estate*.

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***Abstract**: This article takes a deep dive into the U.S. Census Bureau's e-commerce sales data and demonstrates why these figures can lead to common misconceptions. The findings suggest that rather than accounting for as much as 8.3% of total retail sales in 2014, pure-play Internet sales more likely represented as little as 3.3%. By removing the e-commerce sales that were tied to the operation of physical retail, the narrative that Internet sales will lead to the utter destruction of traditional retail simply falls apart. In fact, quite the opposite is true: the strength of brick-and-mortar sales via their online channels is a leading cause of the phenomenal growth rates observed in the non-store sales figures.*

Introduction

Over the last decade, the retail industry, and the media in particular, have been laser-focused on tracking and reporting the U.S. Census Bureau's retail e-commerce sales statistics. And rightly so. On a quarter-to-quarter basis, e-commerce sales continue to increase as a percent of total retail sales and are growing at rates that far exceed those from traditional channels. From the media's perspective, these trends are undeniably appealing as they help to support an apocalyptic (and headline-grabbing) narrative that the Internet will eventually come to be the sole venue for commerce.

Of course this notion needs to be seriously challenged, even opposed.

First, while growth rates are important, it is helpful to keep the overall levels in perspective. In 2015, total retail sales were $4.708 trillion versus e-commerce sales of $343 billion—roughly equivalent to the *Building Materials and Garden Equipment and Supplies Dealers* retail category ($333 billion in 2015 sales), according to the *Monthly Retail Trade Survey* (to be discussed shortly).

Second, **there is clearly a wholesale misunderstanding of what these e-commerce data represent**. More than anything, it is this misunderstanding that reinforces the flawed narrative noted above. This article will reveal the complexity and comprehensiveness of these data: delving into the differences among the various Census Bureau surveys; explaining the nuances behind the numbers; and addressing some of the more common misconceptions in the media and among the players in the retail industry.

Where Can Users Find Census Bureau E-Commerce Data?

For e-commerce-specific data, the Census Bureau provides estimates of e-commerce activity in four key sectors of the U.S. economy including: *manufacturing, wholesale trade, retail trade* and *selected service industries*. These data form the basis of the Census Bureau's E-STATS[1] site devoted exclusively to measuring the electronic economy. This article will focus solely on the retail trade-related data.

For retail sales in general, the Census Bureau produces five datasets on a regular basis that include some level of e-commerce sales detail: 1) *Advance Monthly Retail Trade Survey*; 2) *Monthly Retail Trade Survey*; 3) *Annual Retail Trade Survey*; 4) *Quarterly E-Commerce Report*; 5) *Economic Census*. Each survey/report has its own methodology and provides a slightly different perspective on retail sales.

1. The ***Advance Monthly Retail Trade Survey (MARTS)***[2] provides an early indication of sales by retail and food services companies with one or more establishments that sell merchandise and associated services to final consumers. Partly because of its early release and voluntary nature, the sample size is limited to 4,900 companies. The sample of companies is revised every two to three years from the Monthly Retail Trade Survey. Ultimately, each of these surveys area based on samples from the Business Register.[3] The survey has been reported monthly since 1953[4] and estimates are released approximately nine working days after the close of the reference month.
2. The ***Monthly Retail Trade Survey (MRTS)***[5] is similar to, but more comprehensive than, the *Advance Survey*. This survey is also voluntary, but the sample size is over twice as large, encompassing 12,000 companies. The MRTS, while also providing estimates of sales at retail and food service stores, reports inventories held by retail establishments. The sample of companies is revised every five to six years. The survey has been reported monthly since 1951 and estimates are released approximately six weeks after the end of the reference month.

[1] http://www.census.gov/programs-surveys/e-stats.html

[2] https://www.census.gov/retail/marts/about_the_surveys.html

[3] The Business Register (https://www.census.gov/econ/overview/mu0600.html) is a confidential master list of all domestic businesses encompassing approximately 28 million establishments, updated continuously with information from the Census Bureau and other Federal statistical and administrative records programs.

[4] With the exception of February 1970 to February 1972.

[5] https://www.census.gov/retail/mrts/about_the_surveys.htm

3. The ***Annual Retail Trade Survey (ARTS)***,[6] as opposed to the *Advance* and *Monthly* Surveys, is mandatory, consisting of 22,000 carefully selected companies, making it the most comprehensive and authoritative of the retail trade surveys. In addition to reporting sales and inventories at retail and food service stores, the ARTS also provides estimates of purchases, accounts receivables and operating expenses. The sample of companies is revised every five to six years. The survey has been reported annually since 1952[7] and estimates are released approximately 15 months after the reference year.
4. The ***Quarterly E-Commerce Report***[8] is a summary of retail e-commerce sales (excluding food services and drinking places) collected as part of the *Monthly Survey* and then revised based on the *Annual Survey*. A random sampling method is used to select approximately 10,000 retail firms whose sales are then weighted and benchmarked to represent the complete universe of retail firms. The sample is updated on an ongoing basis to account for new retail employer businesses, business deaths, and other changes to the retail business universe. Each month, firms are asked to report e-commerce sales separately. Estimates are released approximately six weeks after the end of the reference quarter.
5. The ***Economic Census***[9] is a mandatory survey conducted once every five years. This dataset provides the highest level of detail regarding e-commerce sales, establishments,[10] payroll, and number of employees. The next *Economic Census* will take place in 2017 and the results will not begin to be rolled out until roughly a year and a half later.

It should be noted that the U.S. e-commerce figures are derived from domestically-based retailers only. Although online sales are frequently made by non-U.S.-based consumers, the Census Bureau does not distinguish between domestic and international transactions. Given this limitation, it is difficult to determine the exact percentage of U.S. e-commerce sales generated abroad.

What E-Commerce Data Does the Census Report?

The *Advance*, *Monthly*, and *Annual Retail Trade Surveys*, along with the *Economic Census*, capture estimated sales figures of businesses categorized by *North American Industry Classification System* (NAICS)[11] code. NAICS codes range between two and six digits with larger numbers representing more specialized industries. The NAICS codes that encompass e-commerce are listed below in Table 1-1.

Across all levels of aggregation, there are 167 *Retail Trade*-related NAICS codes. Unfortunately, given sampling constraints, the Census Bureau does not report sales for each category or "kind of business" down to the six-digit level. For each survey, there is a trade-off between data timeliness and level of detail.

The *Advance Survey*, being the most timely, has the lowest level of detail, reporting sales in only around 20 categories. The *Monthly Survey* is somewhat better with

Table 1-1
Electronic Shopping NAICS Code Group

44-45 Retail Trade	**2-digit Economic Sector**
454 Nonstore Retailers	3-digit Economic Subsector
4541 Electronic Shopping and Mail-Order Houses	4-digit Industry Group
45411 Electronic Shopping and Mail-Order Houses	5-digit NAICS Industry
454111 Electronic Shopping	6-digit National Industry
454112 Electronic Auctions	
454113 Mail-Order Houses	

Note: The Retail Trade economic sector is large enough to warrant two, double-digit NAICS codes: 44 and 45.
Source: U.S. Census Bureau: 2012 North American Industry Classification System

6 https://www.census.gov/retail/arts/about_the_surveys.html
7 With the exception of 1954.
8 https://www.census.gov/retail/ecommerce/about_the_surveys.html
9 http://www.census.gov/econ/census/
10 The *Economic Census* identifies an establishment as either a sole proprietorship (*Nonemployer*) or as a business with employees for any given retail type. These classifications are reviewed periodically to reflect changes in the primary product lines.
11 NAICS is the standard used by Federal statistical agencies to classify businesses establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.

Table 1-2
Estimates of U.S. Retail and Food Service Sales by Kind of Business (as of August 1, 2016)
(in millions of dollars)

NAICS Code	Kind of Business	Advance*	Monthly*		Annual
		June (a) '16	May (p) '16	April (r) '16	2014
	Retail and food service sales, total	$ 462,314	$ 469,523	$ 450,730	$ 5,211,542
	Total (excluding motor vehicles and parts dealers)	$ 366,574	$ 372,629	$ 355,012	$ 4,190,358
	Retail sales, total	$ 408,054	$ 412,166	$ 394,134	$ 4,636,345
	Retail sales, total (excluding motor vehicle and parts dealers)	$ 312,314	$ 315,272	$ 298,416	$ 3,615,161
	GAFO	(N/A)	$ 103,589	$ 98,419	$ 1,239,722
454	Nonstore retailers	$ 44,256	$ 44,460	$ 43,038	$ 470,196
4541	**Electronic shopping and mail-order houses**	**(N/A)**	**$ 38,790**	**$ 37,491**	**$ 386,135**

* Not Adjusted; (a) Advance Estimate; (p) Preliminary Estimate; (r) Revised Estimate; (N/A) Not Available
Source: U.S. Census Bureau: *Advance*, *Monthly* and *Annual Retail Trade Surveys*

around 60 categories available. The *Annual Survey* reports sales in roughly 80 NAICS sectors. The *Economic Census*, which will be discussed in more detail later, reports sales in all 167 official NAICS categories.[12]

In addition to estimating sales within the 44-45 *Retail Trade* sector, each of these surveys also reports sales for NAICS 722 *Food Services and Drinking Places* and some of that subsector's constituent industries. The surveys also provide frequently used sales totals and subtotals including: *with and without food service*; *with and without motor vehicle and parts dealers*; and *GAFO*[13]—which stands for General merchandise, Apparel, Furniture and Other.

Table 1-2 shows the availability of aggregated total, subtotal and e-commerce-related sales data from the *Advance*, *Monthly* and *Annual Surveys*.

It is notable that, in Table 1-2 above, the lowest level of granularity with respect to e-commerce sales is NAICS 4541 *Electronic Shopping and Mail-Order Houses*. However, as shown in Table 1-1, NAICS 4541 (and NAICS 45411 for that matter) includes NAICS 454111 *Electronic Shopping*, 454112 *Electronic Auctions*, and 454113 *Mail-Order Houses*. From this table, then, it is impossible to determine on a month-to-month or year-to-year basis what portion of any changes are due to fluctuations in the sales of e-commerce firms versus digital auction houses versus catalog sales.

In order to delve more deeply into the e-commerce statistics, the Census Bureau provides a few additional tables[14] as supplements based on the *Annual Survey*. The first table disaggregates NAICS 4541/45411 (which are identical) into sales by merchandise line item (see Table 1-3).

By providing both the NAICS 4541/45411 sales total ($386.1 billion) and the value of the e-commerce sales within that amount ($254.7 billion), users can calculate the value of the combined mail-order and electronic auction house sales ($131.4 billion or 34%).

Unfortunately, as these data are derived from the *Annual Survey*, there is a significant lag. On the plus side, however, the data are available back to 1999 and so one can use the history to better understand the underlying trend regarding the shares of e-commerce versus the mail-order and electronic auction sales in the NAICS 4541/45411 line item(s).

The second supplementary table based on data from the Annual Survey is the one most often cited with respect to total e-commerce sales (see Table 1-4). That is, ***the top-line e-commerce number from this table (shown in red) is the one predominantly used by the media and retail analysts to calculate the share of e-commerce as a percent of total retail sales***. This number, as it will be shown, matches the non-adjusted figure provided in the *Quarterly E-Commerce Report*.

This table is unique in that it identifies e-commerce sales that occur in NAICS categories outside of the 4541 *Electronic Shopping and Mail-Order Houses* industry group. That is, in order to go from the $254.7 billion in e-commerce sales given in Table 1-3 to the $298.6 billion reported in Table 1-4, one must add back some e-commerce sales that the Census Bureau accounts for in the NAICS 441 through 453 categories (a.k.a. "in-store" categories). This e-commerce from "in-store" NAICS sectors accounts for approximately $43.9 billion, or 14.7% of the $298.6 billion e-commerce figure.

(Text continued on page 6)

[12] The *Economic Census* actually reports sales in 206 *Retail Trade*-related NAICS and "NAICS-related" codes. It does this by assigning codes more specialized than the six-digit level—in some cases, up to eight-digits.
[13] GAFO represents stores classified in the following NAICS codes: 442, 443, 448, 451, 452, and 4532.
[14] These tables are also accessible via the E-STATS webpage under Data—Tables 4 and 5.

Table 1-3

Estimated Annual Sales for U.S. Electronic Shopping and Mail-Order Houses: Total and E-Commerce Sales by Merchandise Line (in millions of dollars)

Merchandise Line	2014		Mail-Order & Electronic Auction Sales (Calculated)
	Total	E-Commerce	
Total Electronic Shopping and Mail-Order Houses (NAICS 45411)	**$ 386,135**	**$ 254,712**	**$ 131,423**
Books and magazines	$ 12,004	$ 10,870	$ 1,134
Clothing and clothing accessories (includes footwear)	$ 53,892	$ 46,833	$ 7,059
Computer hardware	$ 28,896	$ 16,029	$ 12,867
Computer software	$ 9,601	$ 6,422	$ 3,179
Drugs, health aids, and beauty aids	$ 94,026	$ 18,870	$ 75,156
Electronics and appliances	$ 27,378	$ 23,370	$ 4,008
Food, beer, and wine	$ 8,331	$ 6,307	$ 2,024
Furniture and home furnishings	$ 27,508	$ 24,257	$ 3,251
Music and videos	(N/A)	(N/A)	(N/A)
Office equipment and supplies	(N/A)	(N/A)	(N/A)
Sporting goods	$ 11,018	$ 9,425	$ 1,593
Toys, hobby goods, and games	$ 10,527	$ 8,872	$ 1,655
Other merchandise*	$ 54,988	$ 40,882	$ 14,106
Nonmerchandise receipts**	$ 25,746	$ 22,593	$ 3,153

* Includes collectibles, souvenirs, auto parts and accessories, hardware, lawn and garden equipment and supplies, and jewelry.

** Includes auction commissions, customer training, customer support, advertising, and shipping and handling.

(N/A) Not Available

Note: The Census Bureau includes the following note regarding E-Commerce: "E-commerce sales 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."

Source: U.S. Census Bureau: *Annual Retail Trade Survey*

Table 1-4

Estimated Annual U.S. Retail Trade Sales: Total and E-Commerce* (in millions of dollars)

NAICS Code	Kind of Business	2014	
		Total	E-Commerce
	Total Retail Trade	**$ 4,636,345**	**$ 298,595**
441	Motor vehicles and parts dealers	$ 1,021,184	$ 28,278
442	Furniture and home furnishings stores	$ 99,687	$ 651
443	Electronics and appliance stores	$ 104,012	$ 1,308
444	Building materials and garden equipment and supplies stores	$ 317,715	(N/A)
445	Food and beverage stores	$ 669,902	$ 1,079
446	Health and personal care stores	$ 299,891	$ 659
447	Gasoline stations	$ 534,670	(N/A)
448	Clothing and clothing accessories stores	$ 250,775	$ 4,199
451	Sporting goods, hobby, book and music stores	$ 85,375	$ 2,471
452	General merchandise stores	$ 666,873	$ 102
453	Miscellaneous store retailers	$ 116,065	$ 2,713
454	Nonstore retailers	$ 470,196	$ 255,578
4541	**Electronic shopping and mail-order houses**	**$ 386,135**	**$ 254,712**

* The Census Bureau includes the same note with respect to E-Commerce as was referred to in Table 1-3.

(N/A) Not Available

Source: U.S. Census Bureau: *Annual Retail Trade Survey*

So what are these "in-store" e-commerce sales? In some cases, this refers to the practice of a customer initiating a sale online, but then going in-store to complete the transaction. This is most often seen in the NAICS 441 *Motor Vehicles and Parts Dealers* line item whereby consumers are able to "build a virtual car" online, but then must go into the dealership to discuss financing and complete the sale.

In other cases, this refers to how the Census Bureau differentiates between e-commerce sales by establishments that have distinct electronic sales divisions with dedicated fulfillment centers (included in NAICS 4541) and those by establishments that primarily fulfill their e-commerce orders from physical stores. An example of this might be a small independent bookseller with a website. When a customer makes a purchase over the Internet, the bookseller must take inventory off the store shelf, pack it and ship it. This differs from a larger book retailer who may take that Internet order and ship from a distribution center or any one of multiple retail locations. In this case, the Census Bureau would count the small independent bookseller's e-commerce sale in the NAICS 451 *Sporting Goods, Hobby, Book and Music Store* category while the larger book retailer's sale would be included in the NAICS 4541 *Electronic Shopping and Mail-Order* category. The implications of these reporting standards will be elaborated upon in the following section.

As mentioned above, the Census Bureau also releases a special *Quarterly E-Commerce Report* for both adjusted and non-adjusted sales. Those figures are based on data from the *Monthly Survey*, which are then revised and aggregated on a yearly basis to match the Annual Survey ($298.6 billion, as reported in Table 1-4). A sample of the data in the *Quarterly Report* is provided in Table 1-5 along with a custom tabulation of the 2014 totals.

Additionally, there is the *Economic Census*, the most detailed and least-timely dataset. As noted above, this resource provides information on sales and more for all 167 official *Retail Trade* NAICS industries—and some non-official ones as well! A sample of the data in the 2012 *Economic Census* is provided in Table 1-6.

So what does it all mean? With so many different e-commerce and electronic shopping-related data points being reported, ***what is the right number***? The following section will take a closer look at each of these figures and identify just what is—and what is not—behind them. This knowledge should help users identify the signal through the noise when it comes to actual e-commerce sales levels and trends.

Moving Towards a More Transparent E-Commerce Number

Open any newspaper following the release of the *Monthly Survey* or *Quarterly Report* or, for that matter, any time during the holiday season, and the focus will undoubtedly be on the rising share of e-commerce as a percent of total retail sales. The article will often point to significantly higher annual growth rates[15] for e-commerce

Table 1-5
Estimated Quarterly U.S. Retail Sales (Not Adjusted): Total and E-Commerce*

Quarter	Retail Sales (millions of dollars)		E-commerce as a Percent of Total	Percent Change From Prior Quarter		Percent Change From Same Quarter A Year Ago	
	Total	E-commerce		Total	E-commerce	Total	E-commerce
1st quarter 2016 (p)	$ 1,116,695	$ 86,327	7.7	-10.6	-20.2	3.3	15.1
4th quarter 2015	$ 1,249,081	$ 108,175	8.7	5.1	33.5	1.7	14.8
3rd quarter 2015	$ 1,188,363	$ 81,020	6.8	-0.1	2.8	1.6	15.4
2nd quarter 2015	$ 1,189,836	$ 78,784	6.6	10.1	5.1	1.1	14.7
1st quarter 2015	$ 1,081,022	$ 74,982	6.9	-12.0	-20.4	1.8	14.4
4th quarter 2014	$ 1,228,634	$ 94,193	7.7	5.1	34.2	4.2	13.9
3rd quarter 2014	$ 1,169,173	$ 70,185	6.0	-0.7	2.2	4.6	15.5
2nd quarter 2014	$ 1,176,975	$ 68,685	5.8	10.9	4.8	4.9	15.0
1st quarter 2014	$ 1,061,563	$ 65,532	6.2	-10.0	-20.8	2.0	13.0
2014 Total	**$ 4,636,345**	**$ 298,595**	**6.4**				

* The Census Bureau includes the same note with respect to E-Commerce as was referred to in Tables 1-3 and 1-4.
(p) Preliminary estimate
Source: U.S. Census Bureau: *Quarterly E-commerce Report*

[15] It is important to keep in mind that high annual growth rates are more easily achieved off of a smaller base. That is, the 1.6% growth in total retail sales from 2014 to 2015 represents $72 billion, whereas the 14.9% growth in the 2014 to 2015 e-commerce figure represents only $44.4 billion.

Table 1-6
2012 Economic Census: Select E-Commerce Industries and Attributes

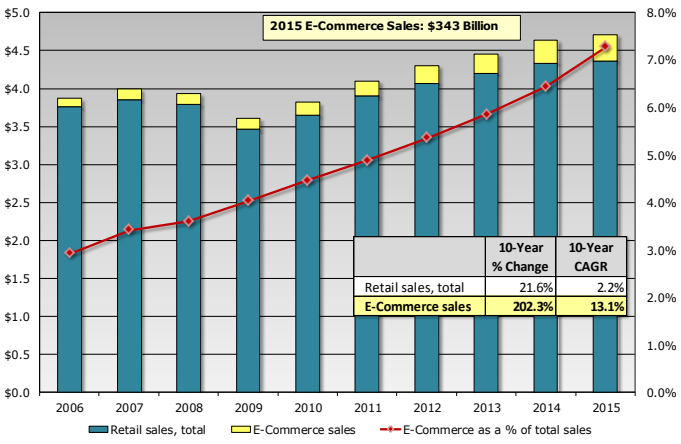
NAICS Code	Kind of Business	Number of establishments	Value of sales, shipments, receipts or revenue ($1,000)	Annual payroll ($1,000)	Number of employees
44-45	**Retail trade**	**1,062,083**	**$ 4,219,821,871**	**$ 369,001,350**	**14,703,529**
454	Nonstore retailers	63,597	$ 385,804,497	$ 27,139,748	600,328
4541	Electronic shopping and mail-order houses	29,618	$ 322,958,117	$ 19,759,705	390,553
45411	Electronic shopping and mail-order houses	29,618	$ 322,958,117	$ 19,759,705	390,553
454111	**Electronic shopping**	**23,052**	**$ 161,314,843**	**$ 8,611,369**	**188,906**
4541111	Electronic shopping, general merchandise	2,289	$ 60,802,015	$ 1,765,363	30,456
4541112	Electronic shopping, specialized merchandise	20,763	$ 100,512,828	$ 6,846,006	158,450
45411121	Electronic shopping, computer hardware and software	1,141	$ 19,121,394	$ 556,121	11,857
45411122	Electronic shopping, pharmacy	120	$ 1,693,938	$ 161,221	3,783
45411123	Electronic shopping, other specialized merchandise	19,502	$ 79,697,496	$ 6,128,664	142,810
454112	Electronic auctions	426	$ 4,251,881	$ 908,855	5,449
454113	Mail-order houses	6,140	$ 157,391,393	$ 10,239,481	196,198

* The Census Bureau includes the same note with respect to E-Commerce as was referred to in Tables 1-3 and 1-4. (p) Preliminary estimate
Source: U.S. Census Bureau: *Economic Census*

relative to total retail sales as the smoking gun that will lead to the inevitable demise of traditional retail.

If one were to take the *Quarterly Report* as the starting point—as is typically the case—the numbers would indeed look daunting. Over the last decade, e-commerce sales have grown from $113.5 billion in 2006 to $343.0 billion in 2015—increasing from 2.9% to 7.3% of total retail sales. During the same period, e-commerce enjoyed a 13.1% compound annual growth rate (CAGR) compared to only 2.2% for total retail sales (see Chart 1-1).

Chart 1-1
Annualized Quarterly Data for Total Retail and E-Commerce Sales (2006-2015) (in trillions of dollars)



CAGR = Compound Annual Growth Rate
Source: U.S. Census Bureau: *Quarterly E-Commerce Report*

However, as clearly demonstrated in the section above, there are competing definitions of e-commerce such that one cannot simply take these figures at face value. Those competing data points are summarized in Table 1-7. ***The following analysis will refer to 2014 data so that accurate comparisons can be made across all of the Retail Trade surveys and reports***.

To begin, it seems reasonable to discount the full NAICS 4541 *Electronic Shopping and Mail-Order Houses* industry group ($386.1 billion) by the non-*Electronic Shopping* pieces. This includes both the NAICS 454112 *Electronic Auctions*[16] and NAICS 454113 *Mail-Order Houses*. While one might consider *Electronic Auctions* as legitimately belonging in a comprehensive e-commerce figure, the 2012 *Economic Census* revealed that only a small fraction of the sales in NAICS 4541 were due to auctions—approximately $4.3 billion out of $323 billion, or 1.3%, as seen in Table 1-6.

For this reason, we can assume that the majority of the $131.4 billion difference between the $386.1 billion and $254.7 billion figures (highlighted in Table 1-3) represents

[16] The Census Bureau differentiates among third-party resellers such as electronic auction sites and online marketplaces. While the Census Bureau does not comment on specific companies, ICSC's understanding is that electronic auction sites like eBay charge a commission and are therefore counted in the *Retail Trade Surveys* under NAICS 454112. Online marketplaces like Etsy charge a standard fee for maintaining the virtual sales platform and are therefore counted as service revenues in the *Annual and Quarterly Service Reports*. Amazon.com's Marketplace is a hybrid, charging fixed fees, a percentage of sales, or some combination thereof. For additional Amazon-specific information, please see the *In Focus: Unpacking Amazon's Sales* in the Appendix of this article. Businesses with employees that utilize these third-party marketplaces are captured in the *Retail Trade Surveys* provided their annual sales exceed $1,500. Peer-to-peer sellers are not directly captured by the *Retail Trade Surveys*, but rather through tabulations in the Census Bureau's *Nonemployer Statistics* program. These estimates are added into the Annual Survey estimates each year and represented as the monthly and quarterly results through benchmarking.

[17] The *Economic Census* data from Table 1-6 indicate that 2012 mail-order sales were $157.4 billion, or 48.7% of NAICS 4541 sales.

Table 1-7
Summary of Competing Definitions of E-Commerce Sales (in millions of dollars)

Source	Kind of Business	2014 Sales	"E-Commerce" as a % of Total Sales
Monthly, Quarterly, Annual	**Retail sales, total**	**$4,636,345**	
Monthly, Annual	NAICS 4541 Electronic shopping and mail-order houses	$ 386,135	8.3%
Quarterly, Annual	E-Commerce (including all Retail Trade NAICS)	$ 298,595	6.4%
Annual	E-Commerce (only within NAICS 4541)	$ 254,712	5.5%

Source: U.S. Census Bureau: *Monthly* and *Annual Retail Trade Surveys* and *Quarterly E-Commerce Report*

mail-order catalog sales—and thus should not count towards a "pure" e-commerce number.[17]

The justifications for removing these mail-order sales are two-fold. In some cases, the catalog business may be directly attributable to the existence of a brick-and-mortar channel. For example, while Sears may have started as a mail-order only company, it has long since transitioned into an established physical retailer with a secondary catalog channel.

In other cases, the catalog sales may be totally disconnected from any electronic commerce infrastructure. This is best illustrated by the *Drugs, Health Aids, and Beauty Aids* merchandise line item shown in Table 1-3. Those data indicate that $75.2 billion, or 80%, of drugs, health and beauty aids that are moved through non-store channels are sold via mail-order. Said another way, mail-order drugs (and some health and beauty aids) make up 20% of total NAICS 4541 sales.

By making this adjustment and removing (primarily) mail-order sales, 2014 e-commerce sales fall from $386.1 billion to $254.7 billion, decreasing as a percent of total retail sales from 8.3% to 5.5%.

But why not use the most often cited *Quarterly Report* e-commerce sales figure: $298.6 billion and 6.4% of total sales in 2014? Recalling the auto dealership and independent bookseller examples discussed in conjunction with Table 1-4, the difference between the $298.6 billion and $254.7 billion comes from physical retailers who use their store to complete sales initiated online or those who use it as the distribution point for all e-commerce purchases.

That is, if the auto dealership or bookseller did not operate a physical storefront in the first place, they would not have a website or the inventory to sell goods remotely. Given that the Census Bureau credits these particular sales ($43.9 billion in 2014) to retailers with physical NAICS codes, these sales do not fit the definition of "pure" e-commerce and should not be counted towards that eventual total.

There is one final seemingly unambiguous revision that can be made that further reduces the "recalibrated" e-commerce sales figure. As seen in Table 1-3, embedded within the $254.7 billion figure for e-commerce is a merchandise line item for Nonmerchandise Receipts ($22.6 billion, or 8.9% of that total). As alluded to in the notes, this includes receipts[18] such as auction commissions, customer training, customer support, advertising, and shipping and handling.[19] Given that these sales do not correspond to physical goods, ICSC feels that they too should be excluded from any future definition of "true" e-commerce sales.

By making this adjustment and removing nonmerchandise receipts, 2014 e-commerce sales fall further to $232.1 billion, or 5.0% of total retail sales.

Convergence: The Omni-Channel Exemption

According to the National Retail Federation (NRF) and Kantar Retail, a retail and consumer insights consulting company, there were only two pure-play Internet retailers on the 2016 list of the *Top 100 U.S. Retailers*: Amazon.com and QVC.[20] Amazon's sales were reported to be $61.6 billion and QVC's were $7.6 billion for a total of $69.2 billion. Similarly, eMarketer published a list of the *Top 25 E-Commerce Retailers 2015*.[21] On that list, there are six pure-play Internet retailers with sales totaling $90.1 billion.

[18] Taxes are not included. They are captured by the Internal Revenue Service to prevent double counting.

[19] These shipping and handling costs can add up. According to Amazon.com's 2015 Annual Report/10-K, their net shipping costs were $4.223 billion in 2014—5.0% of net sales.

[20] https://nrf.com/news/top-100-retailers-2016. The 2016 list reflects 2015 sales volumes.

[21] Arthur Zaczkiewicz, "Amazon, Wal-Mart Lead Top 25 E-Commerce Retail List," *WWD*, Mar. 7, 2016, retrieved Aug. 10, 2016.

[22] $232.1 less the $70-90 billion in top pure-play Internet retailer sales.

If these figures are approximately accurate, then there are roughly $142 billion to $163 billion[22] in e-commerce sales mostly resulting from the online channels of brick-and-mortar establishments!

That bears repeating. ***A significant portion of the Census Bureau's e-commerce sales figures are generated from brick-and-mortar retailers via their online channels***. Based on the "*Top 25*" eMarketer list referenced above, e-commerce sales from the 19 largest brick-and-mortar retailers was $77 billion in 2015. If that tally were extended to include the predominantly traditional NRF/Kanter Retail "*Top 100*" list, it would be undoubtedly larger.

According to the Census Bureau, retail establishments are asked—to the best of their ability—to report sales separately by channel. As an example, an outdoor outfitter may have in-store, online and catalog sales. Should that retailer provide the data in the way that the Census Bureau requests, they would report sales in three separate NAICS categories:[23]

- NAICS 451110 *Sporting Goods Stores*
- NAICS 454111 *Electronic Shopping*
- NAICS 454113 *Mail-Order Houses*

In this way, ***as traditional physical retailers continue to invest in building out their online capabilities, they are contributing to the rise of the very e-commerce sales figure that is being used as evidence of their obsolescence***.

Unfortunately, there is no way to tell exactly how much of this remaining $232.1 billion comes from pure-play retailers and how much comes from the online channels of traditional retailers. The Census Bureau does not create a table that makes that distinction and the underlying data is tightly controlled to ensure confidentiality.

As demonstrated above, by using a list like the one provided by eMarketer, one can make rough estimates by adding up the e-commerce-specific sales of established brick-and-mortar retailers, confident that they reported those sales correctly to the Census Bureau. Alternatively, a user can refer to a data point like one reported by Euromonitor that gives the sales level of pure-play Internet retailers in the U.S. ($151.4 billion in 2014 and $173.3 billion in 2015). By applying this data to the "recalibrated" $232.1 billion figure, one can estimate that e-commerce sales in NAICS 4541 from brick-and-mortar retailers were approximately $80.7 billion in 2014—almost 35% of those e-commerce sales, or 21% of NAICS 4541 (electronic shopping and mail-order houses).[24]

The bigger story here is convergence. Gradually, traditional and pure-play retailers alike are realizing that a sale is a sale irrespective of channel. Retailers, regardless of their foundations, are rushing to adopt logistics and fulfillment systems that seamlessly allow for any combination and permutation of discovering, trying, buying, returning or exchanging across the shopping journey. Such is the heralded and much sought-after "omni-channel" experience.

As highlighted in two recent ICSC studies, *Shopping Centers: America's First and Foremost Marketplace*[25] and *Exploring New Leasing Models in an Omni-Channel World*,[26] this is not an academic pursuit, but rather a new retailing paradigm to which the retailers, landlords, analysts and media must adjust.

During this evolution, the lines between on- and off-line will become increasingly blurred. Growing brick-and-mortar website sales will continue to bolster the widely-reported, supposedly "pure," e-commerce figure. And, in all fairness, the opposite is true as well. As historically Internet-only retailers continue to realize the importance of having a physical storefront (clicks-to-bricks), their in-store sales will begin to bolster the NAICS codes outside of 4541 *Electronic Shopping and Mail-Order Houses*.

At some time in the future, an equilibrium point will be reached where e-commerce as a percent of total retail sales will level off and the year-over-year growth rates will diminish. This is already starting to show up in the data. Taking the Euromonitor pure-play sales referenced above, the annual rates of growth, while still impressive relative to total retail sales, have been consistently shrinking over the past six years. That is, pure-play e-

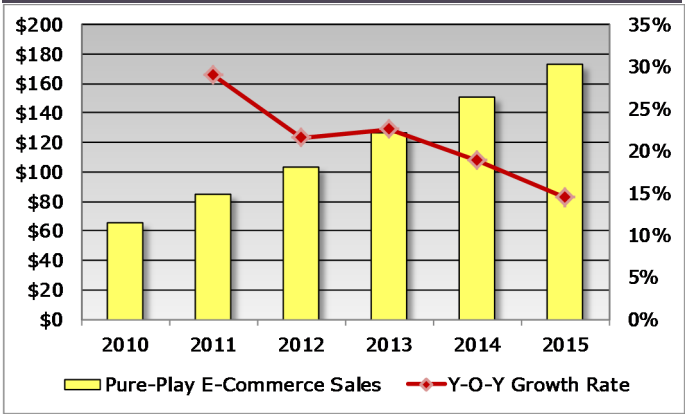
[23] Some retailers also provide services that would be reported in the *Annual and Quarterly Services Reports* and not in any of the *Retail Trade Reports*. Again, while the Census Bureau does not comment on specific companies, ICSC's understanding is that examples may include Amazon Prime or Apple iTunes where users subscribe to and/or download/stream digital products to own/rent. Other retailers such as Best Buy may generate, for instance, revenues from their "Geek Squad" and other services offered in their stores and count them as sales.

[24] Of course, one could also just use a Euromonitor-like pure-play e-commerce sales figure as the starting point and not worry about looking at and/or adjusting the Census Bureau figure at all. With that said, however, there are few substitutes for the quality and reliability of Census Bureau data and users should understand the limitations of relying too heavily on an estimated single data point from a private third-party provider.

[25] http://www.icsc.org/research/publications/downloads/America-Marketplace.pdf

[26] http://www.icsc.org/uploads/research/publications/Special-Studies-US-Leasing-Models.pdf

Chart 1-2
Pure-Play E-Commerce Sales and Annual Growth Rates (in billions of dollars)



Source: Euromonitor

commerce sales are still growing, but growing at a consistently slower rate (see Chart 1-2).

So Where Does That Leave Us?

As long as retail analysts and the media see bricks versus clicks as an adversarial zero-sum game, it will be vitally important that the physical retailers and the real estate that they support be recognized as a significant contributor to e-commerce sales. The habitual practice of using the top-line *Quarterly E-Commerce Report* sales number—or worse, the total for NAICS 4541 *Electronic Shopping and Mail-Order Houses*—to argue that gains in online commerce come at the expense of Main Street significantly underestimates the value of physical locations.

As described above, in 2014, roughly $131.4 (or 34%) of the $386.1 billion in NAICS 4541 sales were attributable to mail-order houses and not e-commerce sites. Of the $298.6 billion in quarterly e-commerce sales, $43.9 billion (or 14.7%) was directly attributable to physical retail as it was actually reported outside of the non-store industries. Additionally, a further $22.6 billion (or 7.6%) of that quarterly figure was technically *Nonmerchandise Receipts* which includes, among other things, nonrefundable shipping and handling.

Simply by removing the mail-order sales, e-commerce at physical retailers and *Nonmerchandise Receipts*, e-commerce as a percent of total retail sales falls from 8.3% to 5.0% in 2014 ($232.1 billion). But even that number must be reduced further as it includes sales by brick-and-mortar retailers through their online channels. By using some available data from non-Census sources such as Euromonitor, one may *conservatively* estimate that those omni-channel sales account for around 35% of the remaining total, lowering the pure-play Internet sales to $151.4 billion, or only 3.3% of total retail sales in 2014.

So, is the sky falling? You be the judge: $151.4 billion in pure-play e-commerce sales versus $4.5

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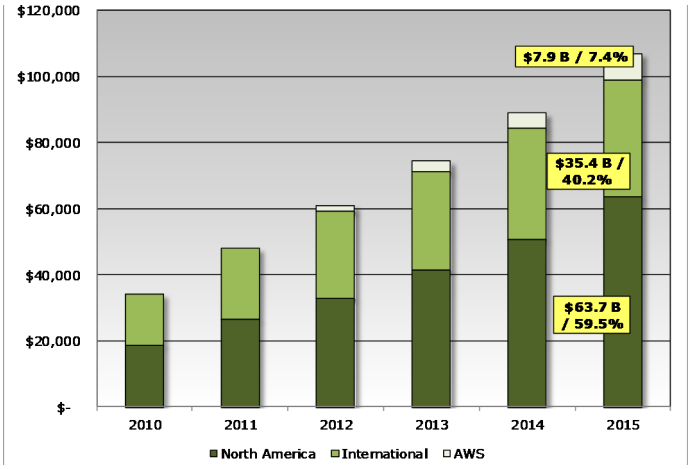
Appendix: In Focus: Unpacking Amazon's Sales

Chart 1-3
Amazon's Net Sales by Business Segment
(in millions of dollars)



Note: The 2012 net sales by business segment were calculated using the 2013 growth rates provided in the 2015 Annual Report. AWS=Amazon Web Services
Source: Amazon.com 2010-2015 Annual Reports

Any discussion of e-commerce sales would be incomplete without analyzing Amazon.com and its impact on the retail industry.[27] As the so-called 800-pound gorilla and undisputed leader in Internet sales, it is the company that analysts and the media use as a proxy for what is happening in the e-commerce space. The following case study will take a deeper look at Amazon's sales figures as they relate to other measures of Internet sales in order to determine if they are indeed a good proxy for e-commerce as a whole, or an outlier in a class of its own.

Prior to 2015, Amazon reported financial results in two principal segments: *North America*[28] and *International*. Beginning in 2015, they added a third segment: *Amazon Web Services (AWS)*. The *2015 Annual Report*[29] provides data for all three segments back to 2013. For the years 2012 and earlier, it can be assumed that the *AWS* sales were allocated in some fashion across the *North America* and *International* segments (see Chart 1-3).

According to the *2015 Annual Report*:

"*Net sales include product and service sales. Product sales represent revenue from the sale of products and related shipping fees and digital media content where we record revenue gross. Service sales represent third-party seller fees earned (including commissions) and related shipping fees, AWS sales, digital content subscriptions, advertising services, and our co-branded credit card agreements. Amazon Prime membership fees are allocated between product sales and service sales and amortized over the life of the membership according to the estimated delivery of services.*"

What this means is that the top-line Amazon sales figure typically reported in the media includes sales/revenues that—if correctly reported to the Census Bureau—would be captured in either the *Retail Trade* surveys or the *Service* surveys. That is, assuming that Amazon is privately, if not publicly, willing and able to report retail sales and service revenues separately, then ***the media is habitually overstating Amazon's share of e-commerce revenues and growth rates***.[30] Unfortunately, there is no indication of what percentage of net sales by business segment are product-related versus service-related.

The *Retail Trade* surveys would capture the vast majority of product sales and some service sales in NAICS 4541 *Electronic Shopping and Mail-Order Houses*. This would include the revenues generated for commissions, advertising services and shipping fees[31] under the *Nonmerchandise Receipts* line item.

The *Service* surveys would capture the revenues generated by seller fees, *AWS* sales and subscriptions.

As noted in the *2015 Annual Report*, Amazon Prime revenue is allocated between product and service sales. According to Census, there is a difference between downloading content and streaming content. In the case of a download, the product is considered "owned" and would therefore be captured in NAICS 4541. In the case of accessing streaming content, the product is considered "rented" by a service provider and would therefore be captured by the service survey.

Keeping in mind that Amazon's North American net sales are overstated by some amount of service revenues as well as Canadian, Mexican and U.S. website export sales, Table 1-8 provides the shares of that figure as a percentage of various retail and e-commerce categories.

[27] The following discussion reflects the views of ICSC, not the Census Bureau.

[28] This segment encompasses sales in the United States, Canada and Mexico including export sales from www.amazon.com, www.amazon.ca, and www.amazon.com.mx.

[29] http://phx.corporate-ir.net/phoenix.zhtml?c=97664&p=irol-reportsannual.

[30] This overstatement is exacerbated by the fact that the North American business segment includes Canadian, Mexican and export sales.

[31] In 2015, Amazon's *North American* and *International* shipping revenue was $6.5 billion with shipping costs of $11.5 billion. This equates to $5.0 billion in net shipping losses, or 5.1% of net sales.

Table 1-8
Amazon's North American Net Sales Relative to Select Retail and E-Commerce Totals (in millions of dollars)

Year	Total Retail Sales	Quarterly E-Commerce Sales*	Pure-Play E-Commerce Sales**	Amazon's North American Sales	Amazon as a % of Total Retail	Amazon as a % of Quarterly E-Commerce	Amazon as a % of Pure-Play E-Commerce
2015	$ 4,708,302	$ 342,961	$ 173,298	$ 63,708	1.4%	18.6%	36.8%
2014	$ 4,636,345	$ 298,595	$ 151,387	$ 50,834	1.1%	17.0%	33.6%
2013	$ 4,459,003	$ 261,206	$ 127,386	$ 41,410	0.9%	15.9%	32.5%
2012	$ 4,302,229	$ 230,563	$ 103,892	$ 32,936	0.8%	14.3%	31.7%
2011	$ 4,102,187	$ 200,623	$ 85,429	$ 26,705	0.7%	13.3%	31.3%
2010	$ 3,818,841	$ 170,640	$ 66,216	$ 18,707	0.5%	11.0%	28.3%

* The data represent annualized totals from the *Quarterly Report*.
** The data represent the sales of Internet-only companies from Euromonitor.
Note: Amazon's 2012 North American sales were adjusted using 2013 growth rates provided in the 2015 Annual Report. The 2010 and 2011 North American sales include AWS revenues.
Sources: U.S. Census Bureau: *Monthly* and *Quarterly Retail Trade Surveys*; Euromonitor

Despite the caveats noted above, Amazon's dominance is clear. It has a significant share of the e-commerce marketplace and it is growing fast. To put these gains in perspective, Table 1-9 shows the year-over-year growth rates and levels to identify Amazon's role in generating those annual gains.

In the same way that year-over-year pure-play Internet sales growth has been slowing over the past five years, so too has Amazon's, down from 42.8% (2010-2011) to 25.3% (2014-2015). This is off the lows in 2013-2014 of 22.8% which

Table 1-9
Amazon's Year-Over-Year North American Net Sales Growth (in millions of dollars)

Year-Over-Year	Year-Over-Year Growth (Levels)			Year-Over-Year Growth (Percent Change)			Amazon's Role in Growth	
	Quarterly E-Commerce Sales*	Pure-Play E-Commerce Sales**	Amazon's North American Sales	Quarterly E-Commerce Sales	Pure-Play E-Commerce Sales	Amazon's North American Sales	Amazon's Share of Quarterly E-Commerce Growth	Amazon's Share of Pure-Play E-Commerce Growth
2014-2015	$ 44,366	$ 21,910	$ 12,874	14.9%	14.5%	25.3%	29.0%	58.8%
2013-2014	$ 37,389	$ 24,002	$ 9,424	14.3%	18.8%	22.8%	25.2%	39.3%
2012-2013	$ 30,643	$ 23,494	$ 8,474	13.3%	22.6%	25.7%	27.7%	36.1%
2011-2012	$ 29,940	$ 18,463	$ 6,231	14.9%	21.6%	23.3%	20.8%	33.7%
2010-2011	$ 29,983	$ 19,214	$ 7,998	17.6%	29.0%	42.8%	26.7%	41.6%

* The data represent annualized totals from the *Quarterly Report*.
** The data represent the sales of Internet-only companies from Euromonitor.
Note: Amazon's 2012 North American sales were adjusted using 2013 growth rates provided in the 2015 Annual Report. The 2010 and 2011 North American sales include AWS revenues.
Sources: U.S. Census Bureau: *Monthly* and *Quarterly Retail Trade Surveys*; Euromonitor

indicates that Amazon Prime, *North American AWS* sales or some other factor has helped the company regain market share over the last several years.

Perhaps more important, however, is that Amazon's share of the quarterly e-commerce gains has remained relatively constant over the last several years (a 2.3 percentage point increase from 2010-2011 to 2014-2015) while its share of the pure-play retailer's sales gains has increased dramatically (a 17.1 percentage point increase from 2010-2011 to 2014-2015). This seems to indicate that the ***gains in Amazon's North American sales are coming more from the pure-play retailers than they are from the more comprehensive quarterly e-commerce figure that includes omni-channel retailers—those leveraging both bricks and clicks.***

Amazon is undeniably a significant force in the e-commerce space. As noted above, it has a commanding market share and is growing at an impressive rate. However, if one were to believe everything seen in the media, one would think that

Amazon was well along the path towards world retail domination. This notion is more than a little overblown. If one takes Amazon's 2015 *North American* sales as a whole ($63.7 billion), adjustments aside, they have roughly the same sales as Albertsons supermarkets ($58.7 billion in 2015).[32]

If one were then to take into account that a significant share of the $63.7 billion is going towards services (e.g. Amazon Prime's music, photo storage, Kindle Owners' Lending Library and streaming films/TV and Marketplace fees), nonmerchandise sales (e.g. shopping, advertising, commissions) and Canadian, Mexican and U.S. export sales, then the narrative regarding Amazon may really need to be reshaped. It is difficult, if not impossible, to say for sure, but after that recalibration, they may be a lot closer to the online sales of traditional retailers.

[32] Jon Springer, "Albertsons Posts Sales Growth in 4Q, Year" (excerpt), *Supermarket News*, May 12, 2016, retrieved Aug. 8, 2016.