

New Census Dataset Breaks Out Warehouse-Fulfilled Online Sales

Assessing the Impact of Pure-Play and Omni-Channel Retailers

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Abstract: This article follows up on a 2016 report that demonstrated why the U.S. Census Bureau's e-commerce sales data can lead to common misconceptions. While the Census Bureau has available e-commerce data dating back to 1999, this article focuses on a new supplemental table that breaks down those sales originating from warehouses for a six-year period (2011-2016). A prior article relied on a non-government third-party source for this information. The table enables a greater understanding of the e-commerce contributions of pure-play retailers and retailers with a physical presence.

Introduction

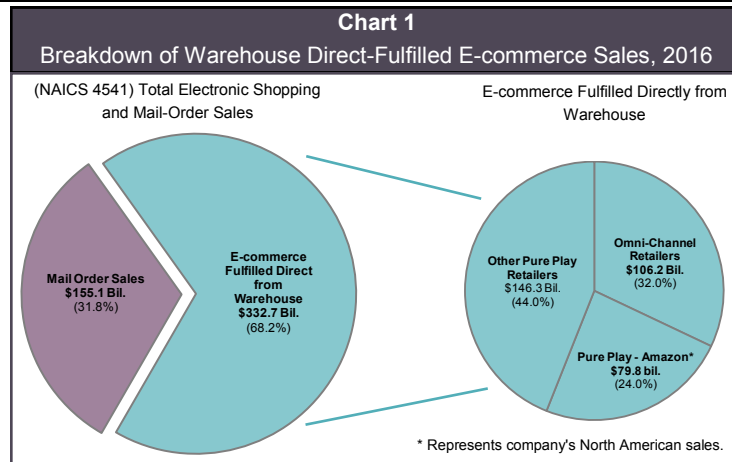
This is a follow-up to ICSC's 2016 e-commerce article that focused primarily on the Census Bureau's 2014 annual retail trade sales data.¹ Since then, the Census Bureau released a new supplemental table that, through a six-year window (2011-2016), attempts to capture e-commerce sales that are fulfilled directly from warehouses for non-store e-commerce and omni-channel retailers.² At the highest level, non-store retailers represented

about two-thirds (68.0%) of warehouse direct e-commerce sales for 2016, the last full year for which data are available. (See Chart 2a.) Although their share decreased by 7.6 percentage points (pp.) from 2011 to 2016, omni-channel retailers maintained a roughly one-third share of warehouse direct sales. *However*, the omni-channel share increases to about 41.9% of all e-commerce when all sales are included, such as sales fulfilled from in-store inventory (see Chart 2b).

Lessons Learned

The following are the primary takeaways from ICSC's latest in-depth look into new e-commerce statistics reported by the U.S. Census Bureau.

- Non-store (or mostly "pure-play") retailers represent two-thirds of e-commerce sales fulfilled directly from a warehouse while omni-channel (the online component of physical stores) comprises the rest. However, the share of omni-channel retailers increases from a third to about 42% of all e-commerce sales when online sales fulfilled from *in-store* inventory are added to those fulfilled directly from warehouses.
- Between 2011 and 2016, warehouse direct sales by omni-channel retailers grew by 60.4%, or \$40.1 billion.
- Amazon's North American sales represented about one-third (\$79.8 billion) of 2016 pure-play sales shipped directly from distribution centers.

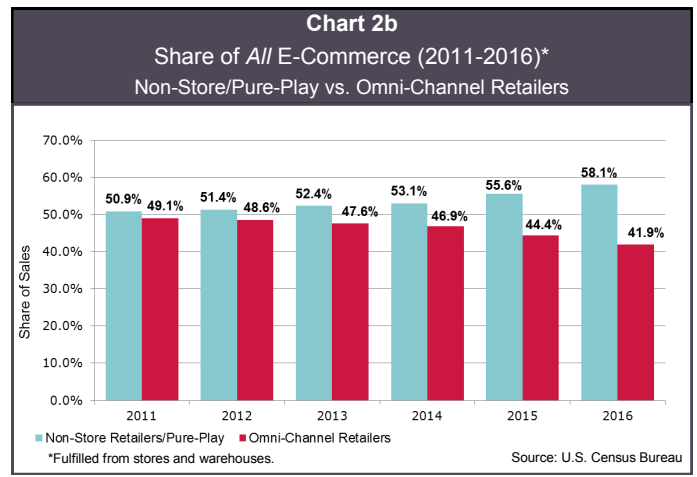
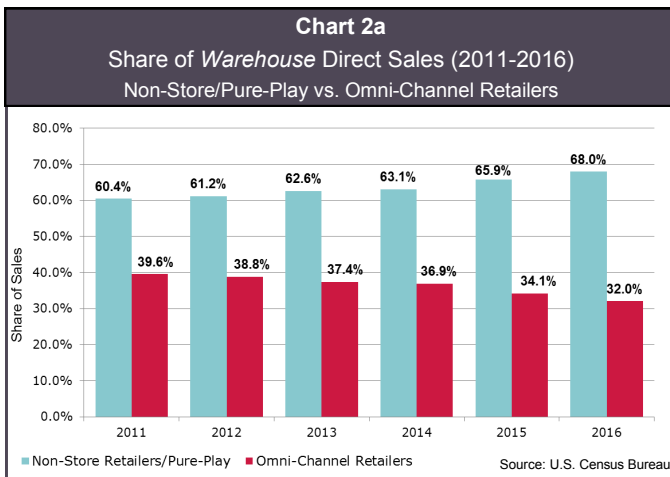


Sources: U.S. Census Bureau (Supplemental Table), Amazon's 2017 Annual Report.

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¹ John Connolly and Chris Gerlach, "Deconstructing the Census Bureau's Retail Trade E-Commerce Figures: How Omni-Channel Retailers are Driving Internet Sales," *Retail Property Insights*, Vol. 23, No. 1, 2016, pp. 1-13. Readers should note that there is a lag of about 14 months between the end of a reference year and the release of the annual data for that year.

² Online sales fulfilled from stores are reported separately, as stated in ICSC's prior article in Table 1-4.



Which Group Accounts for Warehouse Direct e-Commerce Sales?

Table 1, based on the supplemental table of estimated annual sales recently released³ by the Census Bureau, provides the key

to determining the e-commerce contributions of non-store and omni-channel retailers with a physical presence who distribute goods directly from a warehouse. It breaks down components of the Bureau's North American Industry Classification System

Table 1
Supplemental Estimated Annual Sales for U.S. Electronic Shopping and Mail-Order Houses (NAICS 4541) - Total and E-commerce* Sales by Primary Business Activity: 2011-2016

[Estimates are shown in millions of dollars and are based on data from the Annual Retail Trade Survey**. Estimates have been adjusted using final results of the 2012 Economic Census.]

NAICS Code of Primary Business Activity***	Kind of Business	2016		2015r		2014r		2013r		2012r		2011r	
		Total	E-commerce	Total	E-commerce	Total	E-commerce	Total	E-commerce	Total	E-commerce	Total	E-commerce
	Total Electronic Shopping and Mail-Order Houses	487,782	332,681	433,987	287,333	386,065	251,005	350,487	218,160	328,655	193,494	294,697	168,074
	Store Retailers	155,475	106,602	145,766	98,088	136,272	92,673	119,238	81,576	111,774	75,146	98,053	66,479
441	Motor vehicle and parts dealers	499	499	487	481	494	487	429	421	396	388	317	308
442	Furniture and home furnishings stores	7,379	7,038	7,089	6,567	6,088	5,629	5,125	4,671	4,449	3,937	3,782	3,309
443	Electronics and appliance stores	23,043	22,332	20,134	19,713	19,559	19,478	17,852	17,816	17,178	17,159	15,052	15,040
444	Building material and garden equipment and supplies dealers	7,863	7,587	6,798	6,456	5,258	5,175	4,233	4,137	3,031	2,931	2,336	2,228
445	Food and beverage stores		1,419	1,268	1,139	1,046	897	939	801	878	771	806	688
446	Health and personal care stores	47,503	3,187	46,151	3,606	42,840	4,091	35,932	3,794	33,861	3,492	27,894	2,772
447	Gasoline stations	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ	ZZ
448	Clothing and clothing accessories stores	21,709	21,220	22,584	21,336	23,273	21,474	21,161	19,459	18,754	16,611	16,646	14,334
451	Sporting goods, hobby, book, and music stores	6,116	5,779	5,872	5,400	5,499	5,096	5,337	4,788	5,762	5,217	5,392	4,770
452	General merchandise stores	27,639	27,327	23,540	23,085	20,339	19,744	18,524	17,779	16,301	15,705	14,559	13,954
453	Miscellaneous store retailers	12,185	10,214	11,843	10,305	11,876	10,602	9,706	7,910	11,164	8,935	11,269	9,076
454	Nonstore retailers	332,307	226,079	288,221	189,245	249,793	158,332	231,249	136,584	216,881	118,348	196,644	101,595

Source: U.S. Census Bureau

* 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.

** The sample was not designed to produce NAICS 4541 estimates by primary business activity. The amount of sampling error and nonsampling error with some estimates may be substantial. In addition, the variance estimation method has limitations when being applied to the supplemental e-commerce estimates. As a result, the produced measures of reliability in this table may underestimate the sampling variability. The U.S. Census Bureau recommends that individuals use these estimates with caution, as sampling error and nonsampling error could affect the conclusions drawn from the estimates.

*** The first row, Total Electronic Shopping and Mail-Order Houses, represents NAICS 4541 total and e-commerce sales data that are published on the "U.S. Retail Trade Sales - Total and E-commerce (1998-2016)" table (<http://www2.census.gov/programs-surveys/retail/tables/2016/arts/ecommerce.xls>). The data on all other rows of this supplemental table are subsets of those NAICS 4541 estimates. Specifically, this table reallocates the published Annual Retail Trade Survey (ARTS) NAICS 4541 total and e-commerce sales based on the primary business activity (3-digit NAICS code) of each company included in those NAICS 4541 estimates. 'Primary business activity' refers to the 3-digit NAICS level having the most sales for the company when the sample was selected. For additional information about this table, see http://www2.census.gov/programs-surveys/retail/tables/2016/arts/sup_ec_tech_doc.doc.

Z - Estimate is less than \$500,000. r = Revised

Note: This supplemental table provides a breakdown of the NAICS 4541 components using the method described in note *** above. Information about sample design can be found at <http://www.census.gov/programs-surveys/arts/technical-documentation/methodology.html>. For more information about this table, see http://www2.census.gov/programs-surveys/retail/tables/2016/arts/sup_ec_tech_doc.doc.

Note: Estimated measures of sample variability can be found at http://www2.census.gov/programs-surveys/retail/tables/2016/arts/reliability_tables.xls.

Note: Estimates are not adjusted for price changes. Additional information on confidentiality protection, sampling error, nonsampling error, sample design, and definitions can be found on the Internet at <http://www.census.gov/programs-surveys/arts/technical-documentation/methodology.html>.

Note: For a description of publication standards and the total quantity response rate, see <http://www.census.gov/about/policies/quality/standards/standardf1.html>.

³ The original supplemental table was first released in June 2017 with an updated version in March 2018.

(NAICS) code 45411, “U.S. Electronic and Mail-Order Houses,” by store category.

For 2016, overall e-commerce sales for the teal-shaded column in this group—representing specifically direct-from-warehouse shipment distribution—came to \$332.7 billion. Of this, “nonstore retailers” amounted to \$226.1 billion, with the remainder totaling \$106.6 billion. This last figure accounts for a segment often overlooked in the prevailing media narrative about the rise of e-commerce: omni-channel retailers with a physical presence.

To be sure, sales for non-store and omni-channel retailers have grown steadily since 2011. But it is important to put those totals in perspective.

To start with, the \$226.1 billion 2016 sales figure for the non-store warehouse direct segment represents *only 6.1% of the \$3.7 trillion in U.S. non-auto retail sales* for that year. The inescapable fact is that retailers with physical locations still account for the lion’s share of the retail sales landscape. When compared with total retail sales (i.e., with auto and gasoline sales included), the share of non-store warehouse direct sales drops to 4.7%. As for omni-channel retailers, between 2011 and 2016, warehouse direct sales by those retailers grew by 60.4%, or \$40.1 billion.

Amazon and the Pure-Play Segment: More Granular Details Emerge

A few other details introduce additional shades of gray into the media depiction of an all-prevailing pure-play universe. First, while non-store retailers represent about two-thirds of warehouse direct e-commerce sales, those sales are not, contrary to common belief, all attributable to Amazon. In fact, Amazon’s 2016 entire North American sales⁴ of \$79.8 billion equated to just slightly above one-third of all U.S.-only non-store retailer sales in that year. This

means the remaining 64.7% (\$146.3 billion) are 2016 non-store e-commerce sales likely comprised the accumulation of several other non-store retailers.⁵

In other words: notions of “pure-play” e-commerce retailers need to be revised, not just in terms of the extent of their dominance but even their nature.

Keep in mind, however, the results above may be influenced by the following additional fact about Amazon: how it facilitates e-commerce sales by webhosting products for other non-store retailers or by providing an online marketplace. Those product sales are not reported as e-commerce by Amazon,⁶ but by the retailer, and only if the retailer is headquartered in the U.S. This applies to both store and non-store retailers—with the latter sales reported in the 64.7% share highlighted just above.

Omni-Channel Retailers: Which Categories Have Gained the Most Since 2011?

Non-store warehouse direct online sales cannot be broken out any further, as explained in the previous section. But that is not the case for retailers with physical presences that fulfill online orders directly from distribution centers, so some noteworthy trends can be observed as a result.

Table 2 displays selected store category e-commerce sales levels and growth from 2011 to 2016. Notably, general merchandise (\$27.3 billion), electronics and appliances (\$22.3 billion), and clothing/clothing accessories (\$21.2 billion) contributed the most to e-commerce sales in 2016 and had the largest increases in sales volume since 2011. However, building materials/gardening equipment grew the most in percentage (+240.5%) during that time period, followed by furniture and home furnishings (+112.7%). These results indicate that omni-channel retailers

Kind of Business	Sales Level 2011	Sales Level 2016	Actual Increase in Sales Level, 2011-2016	Percentage Growth, 2011-2016
General merchandise stores	13,954	27,327	13,373	95.8%
Electronics and appliance stores	15,040	22,332	7,292	48.5%
Clothing and clothing accessories stores	14,334	21,220	6,886	48.0%
Miscellaneous store retailers	9,076	10,214	1,138	12.5%
Building material and garden equipment and supplies dealers	2,228	7,587	5,359	240.5%
Furniture and home furnishings stores	3,309	7,038	3,729	112.7%
Sporting goods, hobby, book, and music stores	4,770	5,779	1,009	21.2%
Health and personal care stores	2,772	3,187	415	15.0%
Food and beverage stores	688	1,419	731	106.3%
Motor vehicle and parts dealers	308	499	191	62.0%

Note: This historical data is not available for all kinds of business (e.g. gasoline stations).
Source: U.S. Census Bureau

⁴ Amazon does not break out Canadian and Mexican sales separately.

⁵ The Census Bureau does not list non-store retailers by name or grouping due to confidentiality restrictions. However, that category likely consists of possible retailers such as flash sales sites, surplus inventory-discounted sites, direct flower orders (especially during the holidays), direct specialty and general food sites, non-store footwear retailers, eyewear, medical supplies, non-store retailers that must report sales hosted on other sites, and a small component of business-to-business sales derived from primarily categorized retail establishments.

⁶ A fee or percentage of a sale can be reported by Amazon under e-commerce.

increasingly benefit from an integrated inventory system and a multi-faceted distribution approach, while contributing to overall e-commerce growth.

The Mail-Order Component: Often Overlooked

In addition, one element not immediately observable in Table 1 is the importance of mail-order houses and, to a lesser extent, electronic auctions. ICSC's 2016 study of Census Bureau e-commerce data⁷ pointed out that approximately 34% of NAICS 4541 sales in 2014 were due to these sources. Two years later, the mail-order/electronic auction component continued to account for about one-third of NAICS 4541 sales. In Table 1, the 2016 mail-order figure can be derived by subtracting the e-commerce (\$332,681) from the total (\$487,782) column, leaving \$155,101 or 32% of the total. The business type that contributed most heavily

to the \$155.1 billion of the 2016 mail-order sales was health and personal care stores (\$44 billion)—likely a result of mail-order prescription drug sales.

Conclusion

The preceding review demonstrates that, buzzwords like “disruption” or “apocalypse” aside, e-commerce remains only one component of non-auto retail sales as a whole—and not even the dominant one, at that. The recently released Census Bureau data further suggest the increased convergence of brick-and-mortar stores and pure-play retailers. More analysis is needed to uncover additional subtleties of e-commerce and its relationship with retail real estate. Longer trend lines and a deeper dive into the annual Census data will undoubtedly yield additional surprises—the next step.

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⁷ Connolly and Gerlach, pp.1.