

## *Are Home Deliveries Increasing during the Pandemic?*

### *Update 3*

Sorin Garber 12/22/2020



The growth in online sales and home deliveries during the pandemic and its relationship to both our well-being and its stabilizing effect on the economy is getting a lot of attention from both the press and the research community. What interests me most is how shippers and carriers are meeting the challenging delivery options offered by retailers to entice customers. Firstly, they offer an incredibly wide assortment of goods that consumers can order - i.e., not just those on the shelf – at all times of day. Combine that with the fact that instead of a limited number of buyers ordering large volumes of goods for large retailers with consistent and standardized schedules and logistics practices, each of us individually are now the actual buyers equipped with our unique destinations and schedule requirements. Then there is the fact that deliveries are being accomplished at little to no cost to consumers, with free returns (which represent 30% of all online retail deliveries), in one to two days, and with no means of traditional forecasting of the inventory needed.

Many parties I interact with on this subject are fascinated by the types of delivery vehicles that are being employed from cargo bikes to electric step vans to drones, bots, and other autonomous vehicles. Others are excited about the new logistics strategies, including handoffs, crowd sourcing and last-mile exchanges to improve the geographic density of deliveries. Then there are the remarkable land use development changes including fulfillment centers, distribution terminals, etc., that are located closer to consumers, and are equipped with robotics, automated inventory management, and other highly efficient systems.

There are also some unwelcome impacts associated with the growth of ecommerce retail including increased competition for curb space, increased delivery traffic, and loss of retail stores which often sit at the center of our cities and neighborhoods.

For me, again, it is how this all comes together and with so few mistakes by shippers.

As with prior updates, I am reporting on changes to ecommerce sales, and ecommerce related employment and land use development, which generate the traffic patterns of these deliveries. There are several forecast models and datasets that are providing useful information about the types of vehicles used for these deliveries, the routes they use, and the times that they travel, but with the dynamic nature of ecommerce, and the effects of the pandemic, including changing regulations and practices, it is a moving target that we will have to continue paying attention to.

These and other data were previously analyzed in a study SGA prepared - *E-Commerce and Emerging Logistics Technology* - for the City of Portland, which also describes strategies employed by shippers and carriers throughout the U.S. and around the world to meet the fast-growing volume of ecommerce deliveries, and recommendations for how cities can work with industry to help manage the delivery traffic.

## Ecommerce Retail Sales

As shown in Table 1, during the first nine months of 2020, total sales of retail products in the U.S. increased by 5.9% compared with the same 9-month period in 2019, but on-line retail sales grew by a whopping 40.5% while in-store sales grew by just 1.7%. In the first three quarters of 2020 consumers spent \$617 billion, up from \$439 billion for the same period in 2019.

Table 1. U.S. Retail Sales in 1<sup>st</sup>, 2<sup>nd</sup>, and 3<sup>rd</sup> Quarters from 2015 to 2020 (in \$millions)

	January-Sept 2015	January-Sept 2016	January-Sept 2017	January-Sept 2018	January-Sept 2019	January-Sept 2020
<b>In Stores</b>	\$3,266,922	\$3,305,302	\$3,446,696	\$3,619,786	\$3,631,112	\$3,693,484
<b>Via E-commerce</b>	\$252,316	\$291,689	\$331,889	\$387,999	\$439,285	\$617,244
<b>Total</b>	\$3,519,238	\$3,596,991	\$3,778,585	\$4,007,785	\$4,070,397	\$4,310,728
<b>% E-commerce</b>	7.2%	8.1%	8.8%	9.7%	10.8%	14.3%

Source: Quarterly Retail E-Commerce Sales, U.S. Department of Commerce <https://www2.census.gov/retail/releases/historical/ecomml/19q1>

On-line sales at Amazon, which is the number one ecommerce retailer, rose by 24.1% in the 3<sup>rd</sup> quarter 2020<sup>1</sup>. Other retailers also experienced unprecedented growth including Walmart (+79%), Home Depot (+80%), and Target (+154%), the third, fifth and twelfth highest volume ecommerce retailers, respectively, over sales in the 3<sup>rd</sup> Quarter 2019<sup>2</sup>. Target reported that a large percentage of their explosive growth involved shoppers buying online and either picking up their purchases in stores or at their store’s curbside.

While retail sales were up overall, there was some unevenness across the board for different commodities. For example, in the first three quarters of 2020 gasoline sales decreased by as much as 16.1%<sup>3</sup> from the same period in 2019 because there was less travel due to office, store, restaurant, and government office closures, and consumers completing fewer basic errands and non-essential appointments. But the big story, shown in Table 2, is the continued dramatic growth in online sales of groceries, furniture, motor vehicles, building materials, and apparel. Online grocery sales topped \$6.5 billion in September 2020, a 160% increase from September 2019.

<sup>1</sup> Amazon’s profits nearly triple in Q3 as North America sales soar 39%, by Don Davis, Digital 360 Commerce, Oct 29, 2020, <https://www.digitalcommerce360.com/article/amazon-sales/>

<sup>2</sup> Ibid

<sup>3</sup> U.S. Total Gasoline Retail Sales by Refiners, U.S. Energy Information Administration, <https://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=pet&s=a103600001&f=m>

Table 2. U.S. Retail Sales by Commodity Group from 9/2019 to 9/2020  
(in \$billions)<sup>4</sup>

	September 2019	September 2020	% Change
Food and Beverages	\$2.5	\$6.5	+160%
Furniture/Home Furnishings	\$2.7	\$4.1	+49%
Motor Vehicles and Parts	\$11.1	\$12.3	+19%
Building Materials, Garden Equipment and Supplies	\$4.0	\$6.8	+70%
Clothing and Accessories	\$10.0	\$14.0	+33%

Source: *Online Sales by Category, in Weirdest Economy Ever*

## Ecommerce Related Employment

As shown in Table 3, in October 2020, total private sector employment in Oregon was down by 120,400 jobs or -12.7% from October 2019, including a decline of 96,800 jobs in the Portland metro area (-9.2%)<sup>5</sup>. The largest declines occurred in the hospitality, manufacturing professional services, and education and health services sectors.

In contrast, statewide employment grew at unprecedented rates in those industries supporting the e-commerce retail growth such as warehouse and storage workers (+5,900 workers, or 39.3% increase) and messengers and couriers (+3,300 workers, or 31.4% increase) between October 2019 and October 2020. In the PDX region, warehouse/storage and messenger/courier jobs grew by 3,800 and 2,500, respectively, between October 2019 and October 2020.

Table 3. Changes in Selected Employment Categories State of Oregon and Portland Metropolitan Area, 2019 and 2020

	Job Changes between 10/2019 – 10/2020		% Change between 10/2019-10/2020	
	Statewide	Portland Region	Statewide	Portland Region
Total Private Sector Employment	-120,400	-96,800	(7.2%)	(9.2%)
Couriers and Messengers	+3,300	+2,500	+31.4%	+32.5%
Warehouse and Storage Workers	+5,900	+3,800	+39.3%	+38.4%

Source: Oregon Employment Department

<sup>4</sup> *Online Sales by Category, in Weirdest Economy Ever*, Wolf Richter, 11/19/2020, <https://wolfstreet.com/2020/11/19/pandemic-e-commerce-sales-jumped-37-in-q3-after-44-spike-in-q2-blistering-growth-rates-by-product-category/>

<sup>5</sup> Oregon Employment Department, Current Employment Estimates <https://www.qualityinfo.org/ed-ceest/?at=1&t1=4101000000~0~0~00000000~2014~or&t2=41010000000~0~0~00000000~2014~or>

These findings mirror national data which found that Amazon hired 275,000 new workers nationally in January 2020 as well as another 100,000 seasonal workers to handle increased volume<sup>6</sup>. FedEx reports hiring 70,000 seasonal workers and UPS is hiring 100,000 seasonal workers.

## Ecommerce Related Land Use

As described in previous updates and the *E-Commerce and Emerging Logistics Technology Research Report*, facilities associated with the e-commerce supply chain, such as warehouse, distribution, and flex space are in great demand, with up to 2.1 million sf coming into the market in 2019, with 2.3 million sf of new warehouse and distribution space open for business in just the period between January and September 2020. And 3.8 million sq ft continues under construction in the 3<sup>rd</sup> quarter 2020.



Table 4. Changes in Warehouse, Distribution and Flex Space in the Portland Metropolitan Area in 2019 and 2020<sup>7</sup>

<b>New Supply (in 1,000's of square feet)</b>				
	<b>1<sup>st</sup> Qtr</b>	<b>2<sup>nd</sup> Qtr</b>	<b>3<sup>rd</sup> Qtr</b>	<b>4<sup>th</sup> Qtr</b>
<b>2019</b>	508	296	1,249	38
<b>2020</b>	178	1,686	437	NA
<b>Under construction (in 1,000's of square feet)</b>				
	<b>1<sup>st</sup> Qtr</b>	<b>2<sup>nd</sup> Qtr</b>	<b>3<sup>rd</sup> Qtr</b>	<b>4<sup>th</sup> Qtr</b>
<b>2019</b>	1,928	3,602	5,189	5,609
<b>2020</b>	6,098	4,742	3,823	NA
<b>Vacancy Rate</b>				
	<b>1<sup>st</sup> Qtr</b>	<b>2<sup>nd</sup> Qtr</b>	<b>3<sup>rd</sup> Qtr</b>	<b>4<sup>th</sup> Qtr</b>
<b>2019</b>	4.0%	4.0%	4.3%	3.9%
<b>2020</b>	4.2%	4.4%	4.4%	NA

Source: *Portland Metro Industrial Report*, Colliers International

These increases are dominated by the ProLogis industrial warehouse/distribution center developments at the Portland Meadows racetrack, Broadmoor Golf Course, and parcels adjacent to the Expo Center.

<sup>6</sup> *With 3 Billion Packages to Go, Online Shopping Faces Tough Holiday Test*, by Michael Corkery and Sapna Maheshwari, New York Times, 12/5/2020, <https://www.nytimes.com/2020/12/05/business/ecommerce-shipping-holiday-season.html>

<sup>7</sup> *Portland Metro Industrial Report*, Colliers International, 2019-2020, Qtrs. 1, 2, 3 and 4

<https://www2.colliers.com/en/Research/Portland/Q2-2020-Portland-Metro-Industrial-Market-Report>

## Transporting Ecommerce Goods

How are carriers able to move this enormous and sudden growth and with such demanding requirements like one-day, two-day and even two-hour delivery? On top of that, there has been no way to forecast how and when to mobilize and expand carrier capacity because the pandemic impacts and the customer requirements and regulations associated with it have been so unprecedented.

As discussed above, carriers and shippers have been hiring more staff, have reduced supply chain complexities by building distribution centers nearer to the consuming public, and have automated IT systems and warehouse operations to dramatically improve inventory management, and overall efficiency and accuracy of shipping.

Also, carriers are expanding their fleets, more companies have entered the distribution business, and some airlines have converted passenger aircraft into cargo aircraft

Many companies are employing dynamic pricing strategies to smooth supply chain bottlenecks during the crisis<sup>8</sup>.

Some companies have increased shipping time estimates and / or imposed temporary surcharges on packages to less popular destinations to hopefully curtail same day, free delivery, etc., options offered by retailers to those locations with lesser delivery densities. Finding chassis and other equipment to dray goods from steamships and aircraft to trucks, “and intermodal companies have raised surcharges by as much as \$5,000 a load to move containers across the country.”<sup>9</sup>

These added costs are either applied to the customer or absorbed by the shipper.

More information on vehicle technology and warehouse operations is found in the [E-Commerce and Emerging Logistics Technology](#) report.



<sup>8</sup> *Can Delivery Companies Keep Up with the ECommerce Boom?* by Rodrigo Escudero, Felipe Alves, Martin Ehmler, Kartik Goel, and Vitaly Filonov, Boston Consulting Group, 7/1/2020, <https://www.bcg.com/publications/2020/can-delivery-companies-keep-up-with-the-ecommerce-boom>

<sup>9</sup> *Carriers Prepare for Increasing Surge to Supply Chain in E-Commerce Push*, Transport Topics, 10/6/2020, [Carriers Prepare for Surge in E-Commerce Push | Transport Topics \(tnews.com\)](#)

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## What does this all mean?

As with my last review<sup>10</sup>, there are few consistent trends about how e-commerce customers and suppliers of retail products in the U.S. are reacting to the pandemic that we can rely on because there are so many unprecedented global events that dictate both product availability and customer confidence.

First and foremost are the dramatic swings in the U.S. economy. In the second quarter the U.S. economy shrank 9.5%; the worst quarter decline ever – including the Great Depression when the economy shrank by 7.2% in one quarter<sup>11</sup>. Further, the U.S. GDP shrank at an annual rate of 32.9%<sup>12</sup> in the second quarter, and the unemployment rate fluctuated between 11.1% and 14.7<sup>13</sup>.

In contrast, in the third quarter of 2020 the U.S. economy grew at a record 33.1%<sup>14</sup> annualized rate and unemployment dropped to between 7.9% and 10.2%<sup>15</sup>. Even with these great improvements, the economy has yet to fully rebound from its plunge in the first half of the year and is still about 10.7 million jobs short of recovering all the 22 million jobs that were lost during the pandemic.

In other words, we need to exercise caution when reviewing data and anecdotes about the changes in the retail sector during the pandemic before reaching conclusions about what the future will bring. Retailers have always innovated to outperform their competitors, and suppliers and carriers have always responded to their changing demands. It's unclear whether the growth in on-line retail sales will continue at its current pace or whether customers will return to brick-and-mortar stores in droves.

Most experts believe that consumers will not return to shopping at stores like they did in past years, but there is no hard evidence that the growth we've witnessed in the past year will continue. For example, would this growth curve change if large numbers of shippers shifted to variable pricing to help balance resources, or one-day or two-day shipping came with a cost to consumers, or carriers began adding new charges to their operations, or there was a charge to consumers for returns?

Just as we began to accept charges for ATM withdrawals, and spiraling phone costs, we may simply pay for services we now get for free or at little cost, but at this point – and in the post-

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<sup>10</sup> *Are Home Deliveries Increasing during the Pandemic?*, Sorin Garber 5/31/2020, <https://www.sgapdx.com/news>

<sup>11</sup> *U.S. economy contracted at fastest quarterly rate on record from April to June as coronavirus walloped workers, businesses*, Washington Post, Rachel Siegel and Andrew Van Dam, July 30, 2020, <https://www.washingtonpost.com/business/2020/07/30/gdp-q2-coronavirus/>

<sup>12</sup> *Gross Domestic Product, 2nd Quarter 2020 (Advance Estimate) and Annual Update*, U.S. Department of Commerce, July 30, 2020, <https://www.bea.gov/news/glance>

<sup>13</sup> *Unemployment Rates Seasonally Adjusted (USLAUS Tool)*, Quality Info. Org <https://www.qualityinfo.org/ed->

<sup>14</sup> *Gross Domestic Product, 3rd Quarter 2020 (Advance Estimate) and Annual Update*, U.S. Department of Commerce, November 25, 2020 <https://www.bea.gov/data/gdp/gross-domestic-product>

<sup>15</sup> *Unemployment Rates Seasonally Adjusted (USLAUS Tool)*, Quality Info. Org <https://www.qualityinfo.org/ed-uesti/?at=1&t1=0000000000,4101000000~unemprate~y~2000~2020>

pandemic era, it's challenging to imagine how shippers can continue to manage and move products as quickly and inexpensively as they currently do.



This is the third installment of updates to the study - [E-Commerce and Emerging Logistics Technology](#) - I prepared for the City of Portland, which also describes strategies employed by shippers and carriers throughout the U.S. and around the world to meet the fast-growing volume of ecommerce deliveries, and recommendations for how cities can work with industry to help manage the delivery traffic.

I'm going to continue tracking data e-commerce sales, employment by type of delivery worker, vacancy rates for industrial/warehouse space, and sales by retail category., and publishing them on both my web site ([www.sgapdx.com](http://www.sgapdx.com)) and [LinkedIn site](#).

There is a wide range of data about ecommerce sales behaviors during the pandemic such as ecommerce sales by age group, ecommerce sales by commodity, ecommerce sales by company, and more.

If you are interested in learning more about these and other trends, please contact me at [sorin.garber@sgapdx.com](mailto:sorin.garber@sgapdx.com)