The rise of e-commerce retail sales and its impact on the global supply chain

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The US, Western European, and Chinese consumer: clicks outpacing the bricks

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Forces affecting US consumer markets

Positive forces
• Employment growth
• Real wage growth
• Rising asset values
• Expansion of e-commerce

Negative forces
• High student debt burdens
• Saving for retirement
• Asset and income inequality
• Store closings
US real median household income made strides in 2015 and 2016

Real median household income

Thousands of 2016 dollars


Source: IHS Markit
US incomes pushed past prerecession levels for most households in 2016

Real mean household income by quintile

Source: IHS Markit

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US poverty rate pushed lower in 2015 and 2016

Percent of population below poverty level

Source: IHS Markit © 2017 IHS Markit
US consumer sentiment is upbeat, supported by improving household finances

University of Michigan Index of Consumer Sentiment

Source: University of Michigan, IHS Markit © 2017 IHS Markit
US consumer sentiment by household income

Source: University of Michigan, IHS Markit © 2017 IHS Markit
US e-commerce share of retail trade jumps in second quarter

E-commerce share of retail trade

<table>
<thead>
<tr>
<th>Year</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>6.2</td>
</tr>
<tr>
<td>2015</td>
<td>6.3</td>
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<tr>
<td>2016</td>
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<td>2017</td>
<td>6.6</td>
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<tr>
<td>2018</td>
<td>6.9</td>
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<tr>
<td>2019</td>
<td>7.1</td>
</tr>
<tr>
<td>2020</td>
<td>7.3</td>
</tr>
<tr>
<td>2021</td>
<td>7.5</td>
</tr>
<tr>
<td>2022</td>
<td>7.8</td>
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<tr>
<td>2023</td>
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<td>2024</td>
<td>8.2</td>
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<tr>
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<tr>
<td>2026</td>
<td>8.5</td>
</tr>
<tr>
<td>2027</td>
<td>8.9</td>
</tr>
</tbody>
</table>

Source: IHS Markit
US e-commerce takes a bigger bite out of retail sales

E-commerce share of retail sales

Source: IHS Markit

© 2017 IHS Markit

E-commerce share of total retail sales less restaurants, food and beverage stores, auto dealers, and gas stations

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US e-commerce retail share expanding

E-commerce retail share of total retail sales excluding food, gas, and autos, SA

Source: IHS Markit

© 2017 IHS Markit
US 2017 holiday retail sales growth to maintain solid pace

Holiday retail sales

<table>
<thead>
<tr>
<th>Year</th>
<th>Percent change from a year earlier</th>
</tr>
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<tbody>
<tr>
<td>2007</td>
<td>-4.6</td>
</tr>
<tr>
<td>2009</td>
<td>0.2</td>
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<tr>
<td>2011</td>
<td>5.2</td>
</tr>
<tr>
<td>2013</td>
<td>4.6</td>
</tr>
<tr>
<td>2015</td>
<td>2.6</td>
</tr>
<tr>
<td>2017(f)</td>
<td>3.2</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: NSA November and December total retail sales less auto dealerships, gasoline, and food services

Source: IHS Markit

© 2017 IHS Markit
US 2017 online holiday retail sales growth to remain brisk

### Online holiday retail sales

<table>
<thead>
<tr>
<th>Year</th>
<th>Percent change from a year</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007</td>
<td>-3.0</td>
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<tr>
<td>2009</td>
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<td>2011</td>
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<td>2015</td>
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<td>2017(f)</td>
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<tr>
<td>2017(f)</td>
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</tbody>
</table>

**Notes:** NSA November and December electronic shopping and mail order retail sales

**Source:** IHS Markit

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US online share of holiday retail sales

E-commerce share of holiday retail sales

Source: IHS Markit

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US: Clicks outpacing the bricks

Department and online stores retail sales

- Electronic shopping and mail order
- Department stores

Source: IHS Markit

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Western Europe: GDP & consumer spending growth

Real GDP and real consumer spending

Source: IHS Markit

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Western Europe: Real consumer spending

Real consumer spending

Source: IHS Markit
Western Europe: Real consumer spending

Real consumer spending

Source: IHS Markit
Western Europe: Younger consumers go online
(Percent of individuals with at least one online purchase over the year)

Source: Eurostat
Europe: Poland showing growth, Italy lagging
(Percent of individuals with at least one online purchase over the year)

Source: Eurostat
Growth of e-commerce in Europe

Annualized growth of e-commerce retail sales between 2011 and 2016

- France: 14%
- Germany: 10%
- UK: 9%

Source: IHS Markit
China’s economic growth will downshift in the long run

Real GDP and industrial production

Source: IHS Markit

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China’s online goods share of retail sales is expanding

Online goods share of retail sales, NSA

Source: IHS Markit © 2017 IHS Markit
US e-commerce and logistics

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E-commerce has transformed the retail space, with important implications for supply chains and logistics

• E-commerce sales have grown at a rapid pace over the past 15 years, steadily gaining share in the retail space

• The rise of e-commerce has caused significant shifts in retail strategies and in the information available to end consumers

• These shifts have led to changes in traditional supply chains as businesses evolve to address e-commerce demand
Traditional supply chains
Traditional supply chains
Traditional supply chains

- Imports
- Domestic Manufacturers
- Rail/Freight
- Warehouse
- Small Package
- Retail Stores
- Domestic Manufacturers
- Rail/Freight
- Warehouse
- Small Package
- Retail Stores
E-commerce has disrupted traditional supply chains

- Final Delivery
- Speed
- Price Sensitivity
Surging e-commerce has driven the rise in B2C transportation

- In a traditional retail experience, the final delivery takes place at the retail store location, typically from a warehouse or wholesaler.
- These shipments usually occur through commercial small-package shipments, LTL (less than truckload), or TL (truckload) shipments.
- E-commerce shipments predominantly end at residential locations via small package, which can be more costly to deliver.
Rising e-commerce will likely lead to a majority residential market in upcoming years

Source: UPS Analytics

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Businesses have increasingly competed on speed to gain advantage in the marketplace

- In recent years, e-commerce retailers have put a greater emphasis on speed of delivery
- As a result, retailers have increasingly set up warehouses/fulfillment centers located near major customer bases
- This leads to higher warehousing costs for businesses and shifts in the types of shipments used to transport goods
LTL shipments have done well in recent years as firms aim to locate fulfillment centers closer to customers

![LTL Market Volume Chart](chart.png)

Source: NPD, UPS Analytics
Free-flowing information has made consumers increasingly price sensitive

- E-commerce has allowed for rapid price comparisons by consumers, leaving retailers with little pricing power
- Many retailers have to keep both a physical and online presence, putting upward pressure on costs
- Retailers have reduced their physical presence and kept inventories lean, relying on omnichannel solutions for in-store customers
Store closings are projected to exceed recession levels.
Retailers have kept inventories lean as omnichannel strategies have evolved

Real Retail Inventory/Sales Ratio

Source: Bureau of Economic Analysis

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Summary

• The rise of e-commerce has placed traditional retailers in a difficult position, intensifying competition as consumers enjoy greater information

• Businesses have been tasked with delivering an e-commerce solution that gets products to consumers quickly at a low price

• In response, retailers have adjusted their supply chains, altering transportation and warehousing demands

• The retail environment continues to evolve, with businesses constantly adjusting their practices to meet changing consumer preferences
What are the drivers of China’s supply chain?

Jeff McDonald, Executive Vice President, NNR Global Logistics, +1 630 254-3200, jmcdonald@nnrusa.com
Four shifts driving China’s supply chain
Four shifts driving China’s supply chain

- Labor costs
- Production methods and location
- Consumer demographics
- Consumption patterns: e-commerce
1st Shift: Labor costs

The end of low-cost labor?
Chinese wages and salaries will increase by more than 11 percent in 2017

Nominal Chinese wages and salaries

Source: IHS Markit

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Billion renminbi
Chinese real wages and salaries will increase by 8 percent in 2017

Real Chinese wages and salaries

Source: IHS Markit

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2nd Shift: Production methods

The end of low-cost labor?

Chinese manufacturers coming to the US?
2nd Shift: Production location

Go West and Plus 1 APAC

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3rd Shift: Consumer demographics

Producer AND consumer
By 2020, Chinese consumption will have grown by $1.4 trillion – even as GDP growth slows

Private consumption and spending growth from 2015

Source: IHS Markit
Three forces of change are creating a two-speed economy in China

**Upward mobility**

- Emerging-middle and middle class: 4.6%
- Upper-middle and upper class: 6.5%

**Generational shift**

- Ages 18-35: 12.2%
- Ages 36+: 8.6%

**Growth of e-commerce**

- Off-line: 6.5%
- Online: 31.0%

Note: Emerging-middle and middle class: income quintiles 1-3. Upper-middle and upper class: income quintiles 4-5.

Source: IHS Markit © 2017 IHS Markit
4th Shift: Consumption patterns

Evolution of the Chinese consumer

From EPZ to e-commerce
Total Chinese retail sales growth rate is hovering around 10%
Meanwhile, growth of online retail sales of goods is three times stronger.

Online retail sales of physical goods, NSA

Source: IHS Markit

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China’s online goods share of retail sales is expanding

Online goods share of retail sales, NSA

Source: IHS Markit © 2017 IHS Markit
4th Shift: Consumption patterns

More e-commerce sales in one day in China than 1 year in Brazil!

Singles' Day rang up an eye-popping $17.8 billion in sales

82% of 11.11 sales were mobile

27% of purchases were from international brands or merchants

75% of those on the Tmall app are under 35