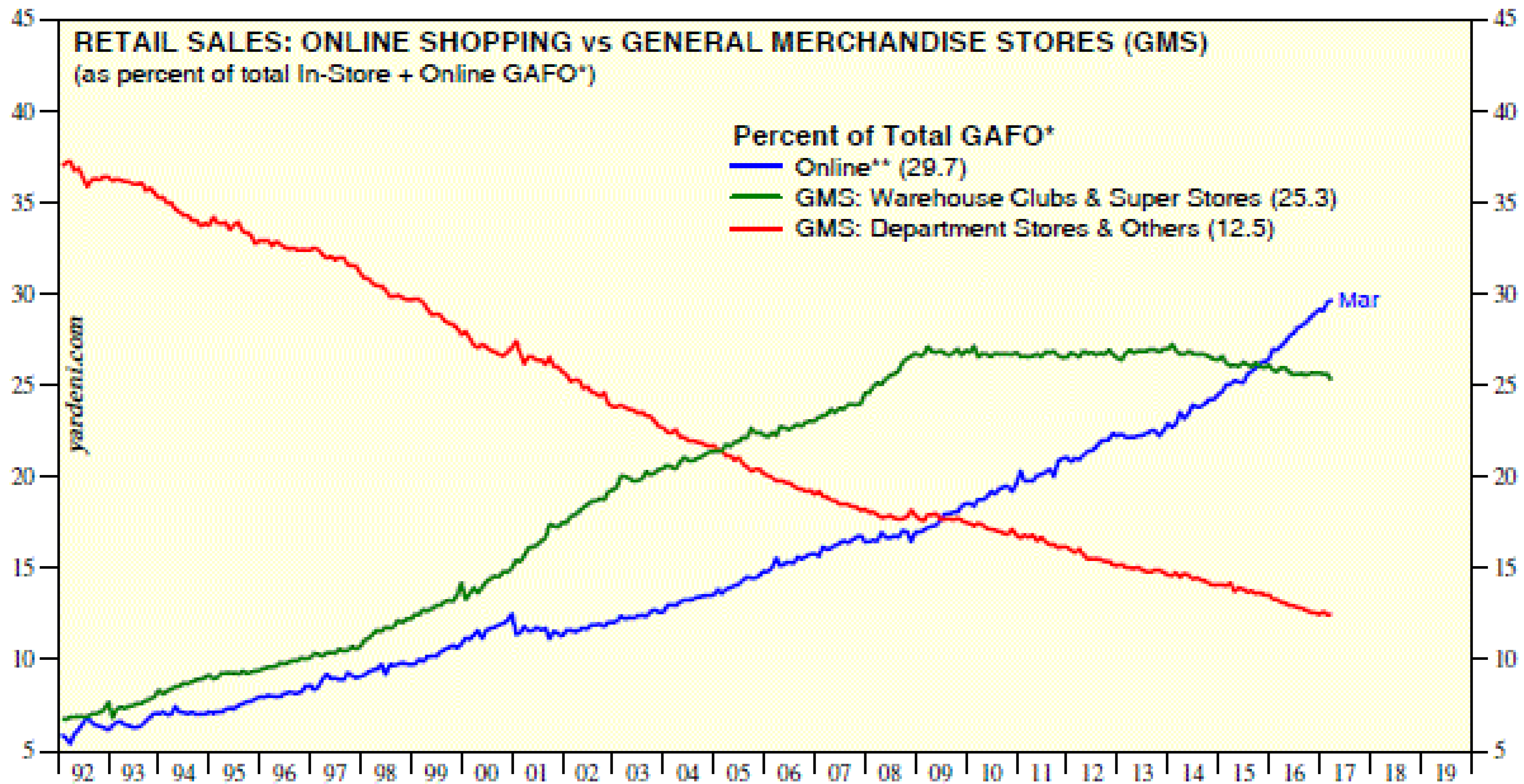


The Delivery Economy Changes Everything: New Requirements for Urban Freight Research *and opportunities!*

Anne Goodchild

Professor, Civil and Environmental Engineering

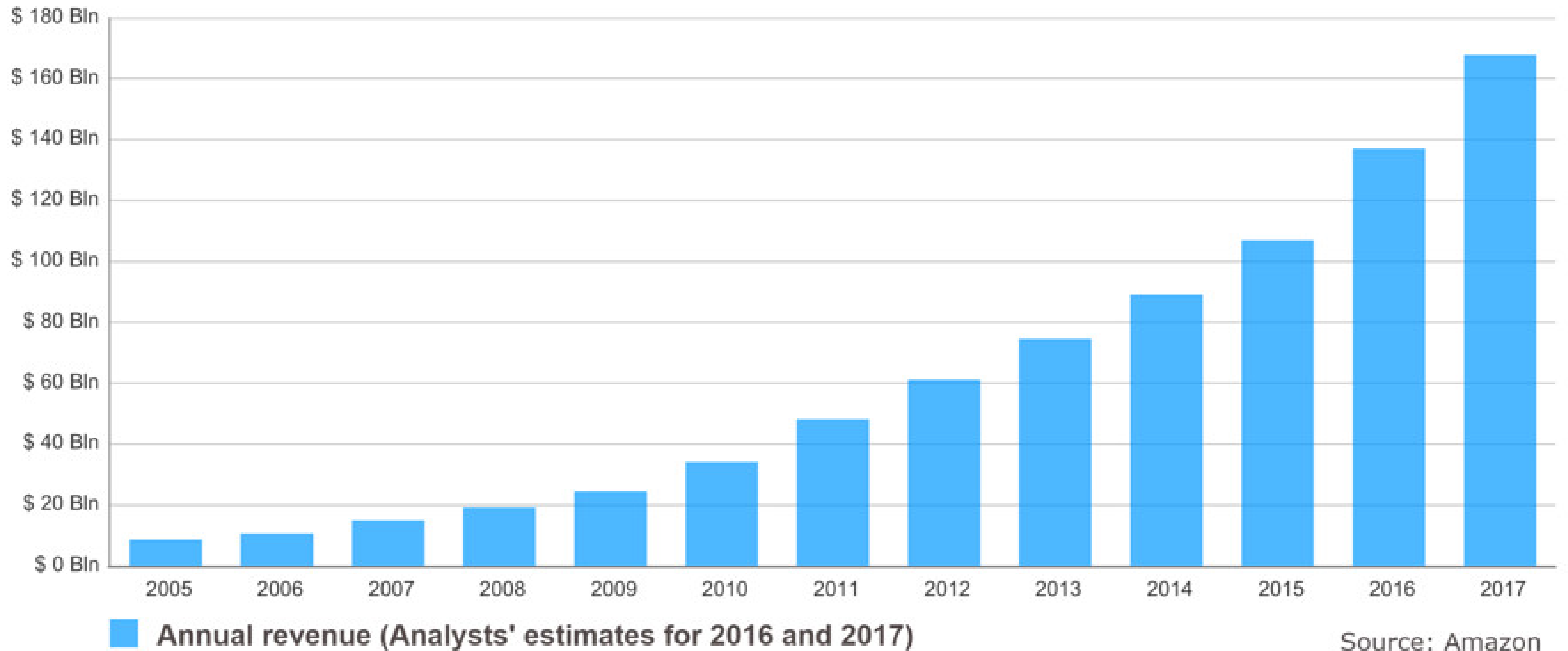
Founding Director, Supply Chain Transportation and Logistics Center



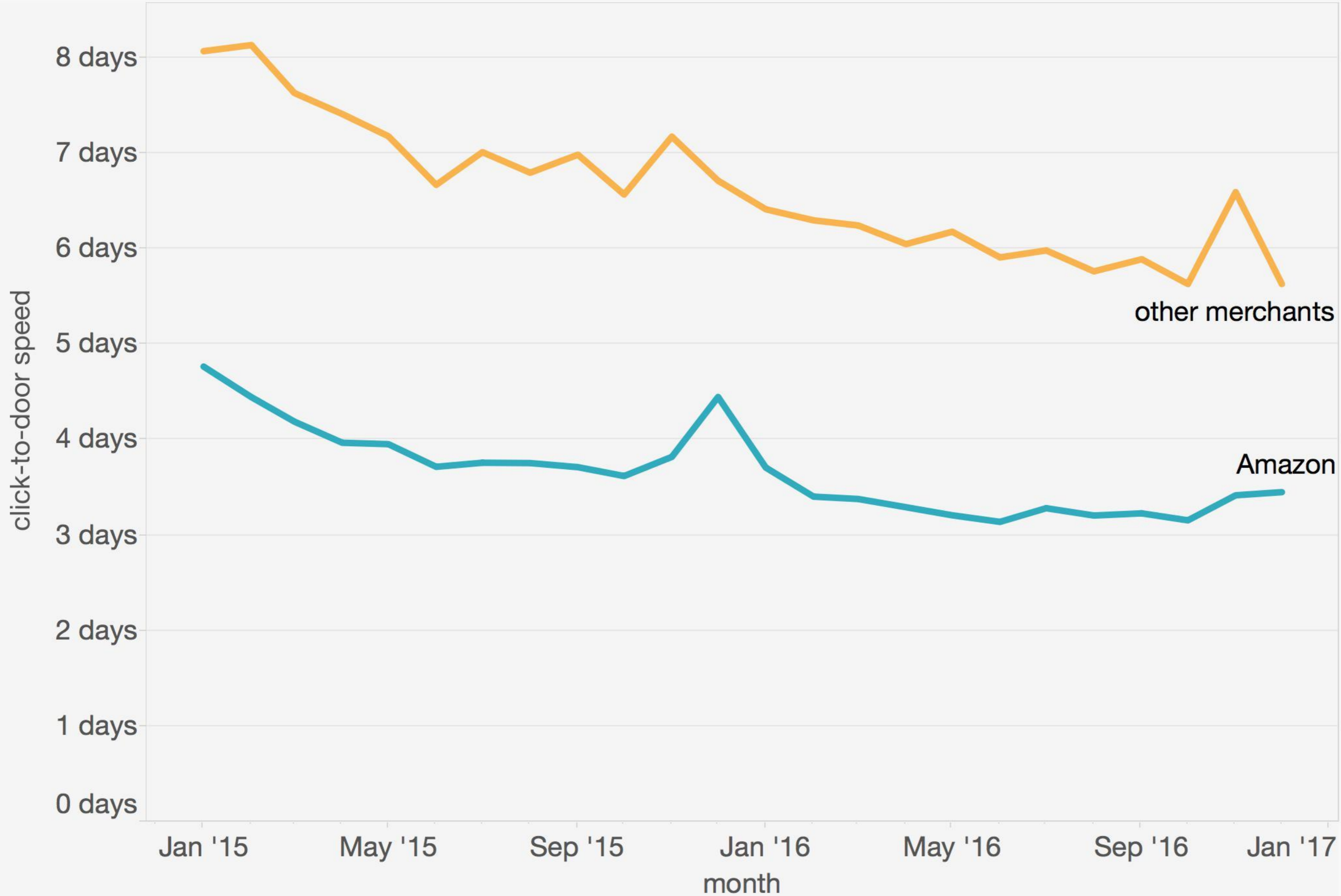
* GAFO (general merchandise, apparel and accessories, furniture, and other sales) includes retailers that specialize in department-store types of merchandise such as furniture & home furnishings, electronics & appliances, clothing & accessories, sporting goods, hobby, book, and music, general merchandise, office supply, stationery, and gift stores.

** Electronic shopping and mail order houses.
Source: Census Bureau and Haver Analytics.

Amazon's revenue growth



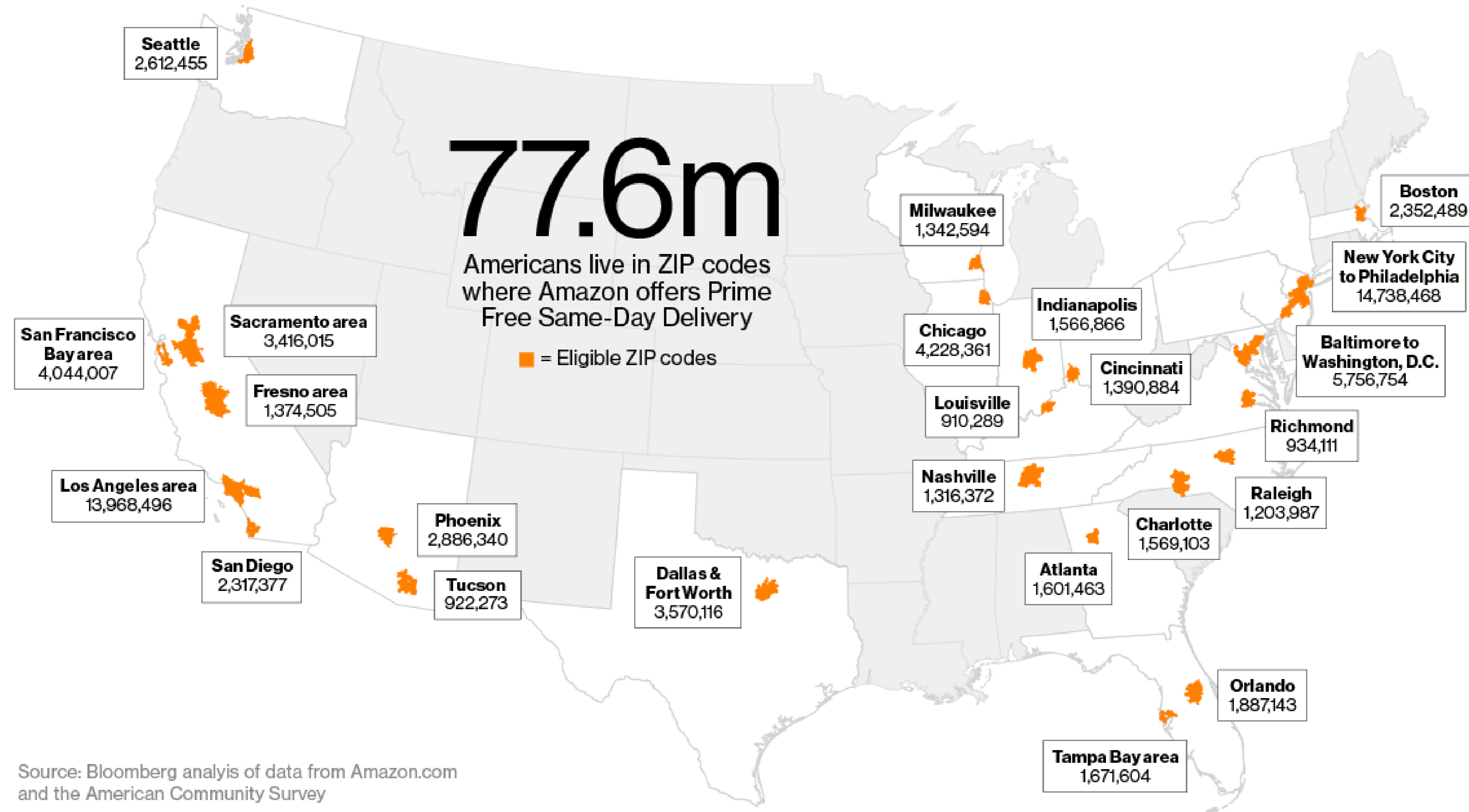
Amazon has maintained a two to three day lead over the rest of the pack in shipping speed



Copyright © Slice Intelligence 2016. Jan 1, 2015 - Dec 31, 2016. n=2,176,219 U.S. online shoppers



“Free” Same-day Delivery for Prime Members

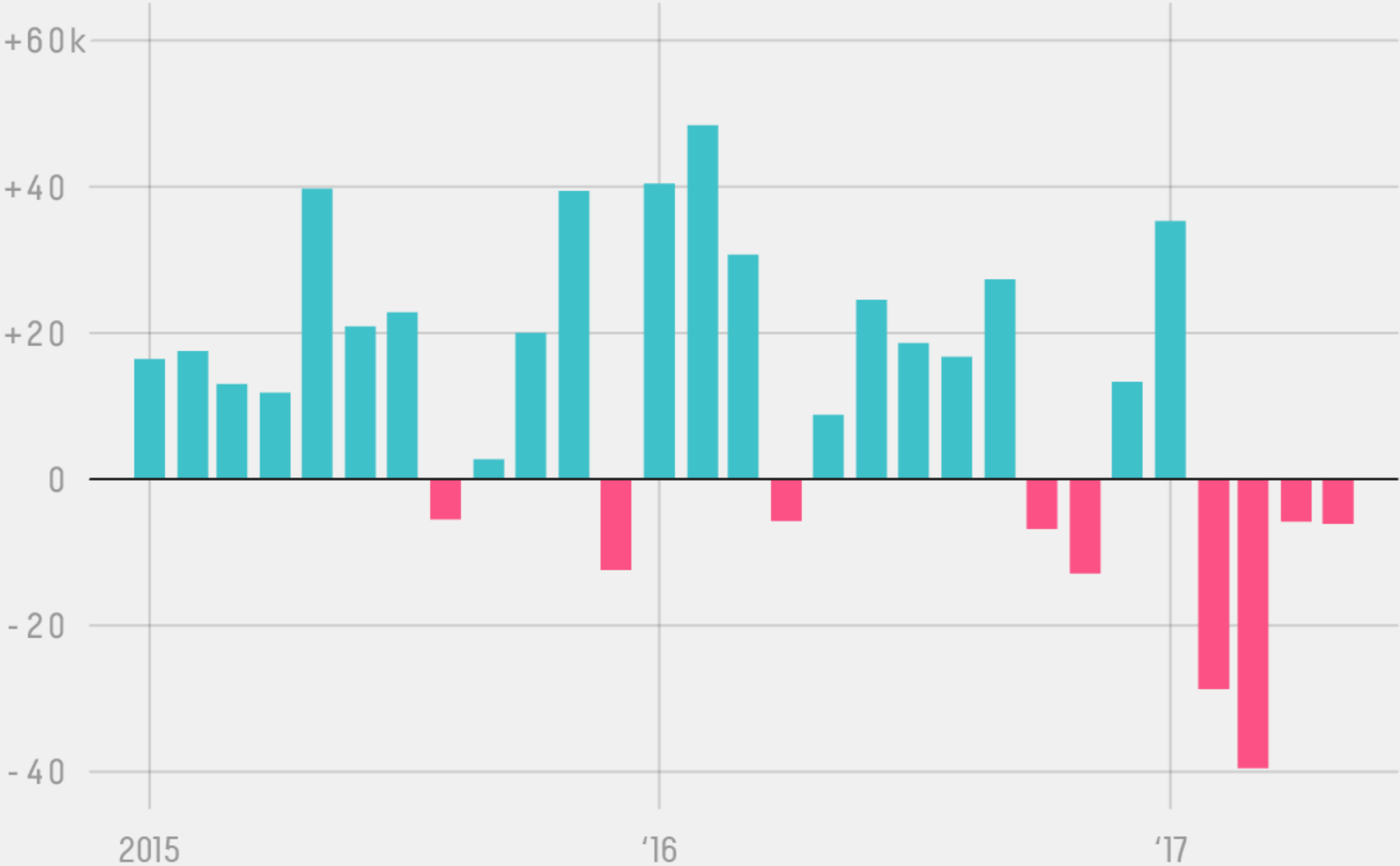


Source: Bloomberg analysis of data from Amazon.com and the American Community Survey

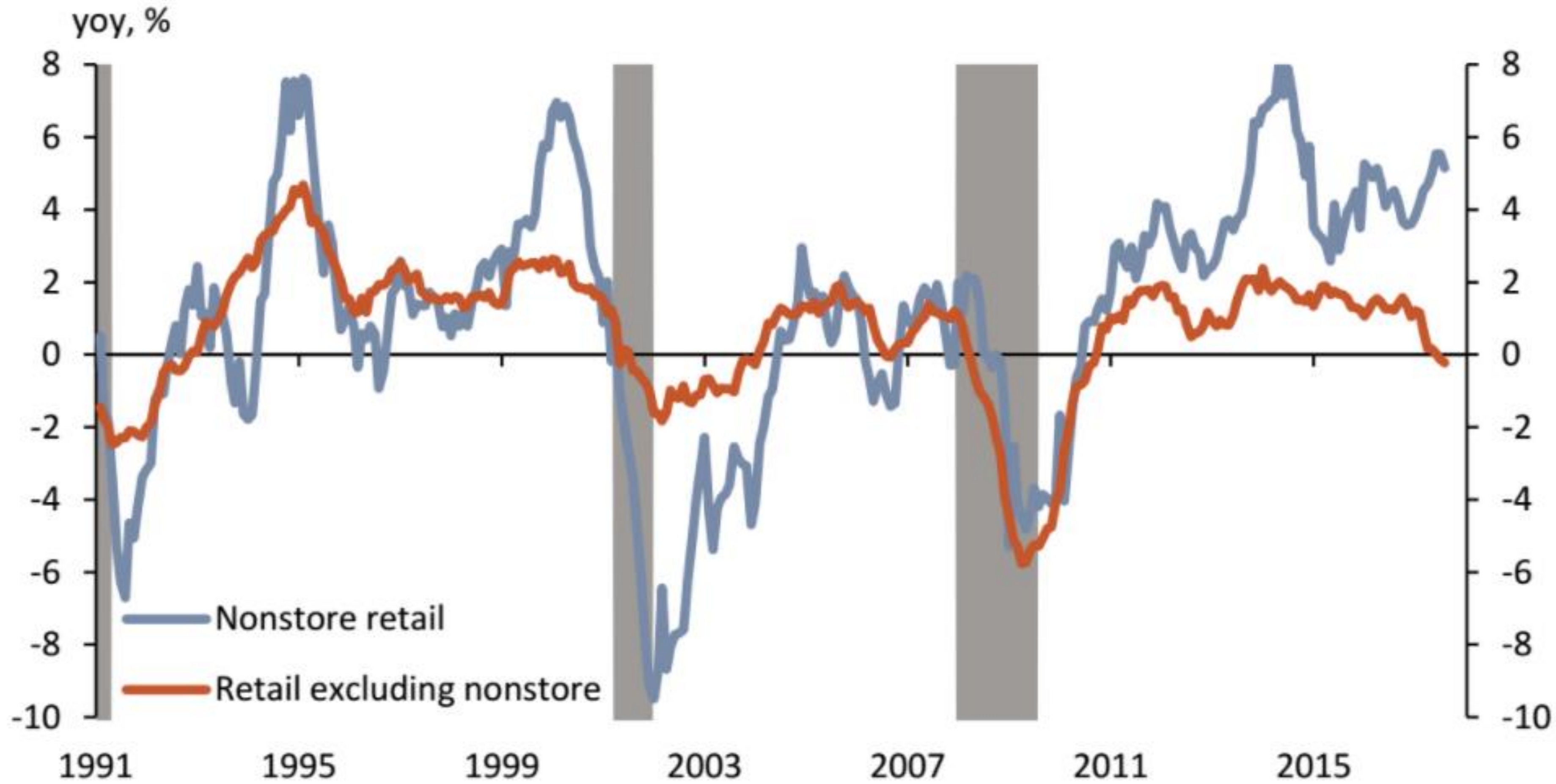


Retail jobs

Change from prior month, seasonally adjusted



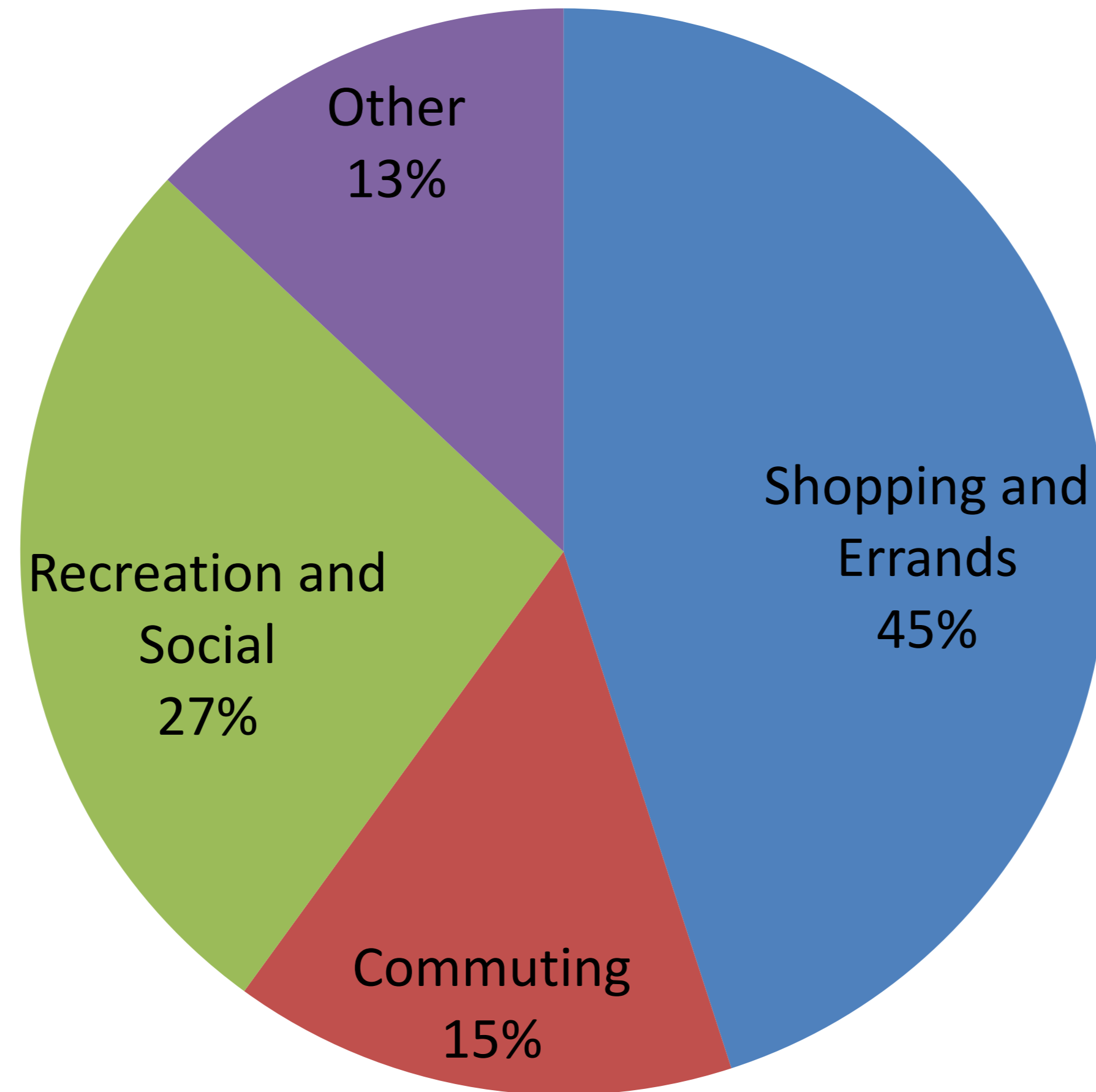
Nonstore and traditional retail employment



Source: Census Bureau, Bureau of Labor Statistics and Berenberg Capital Markets



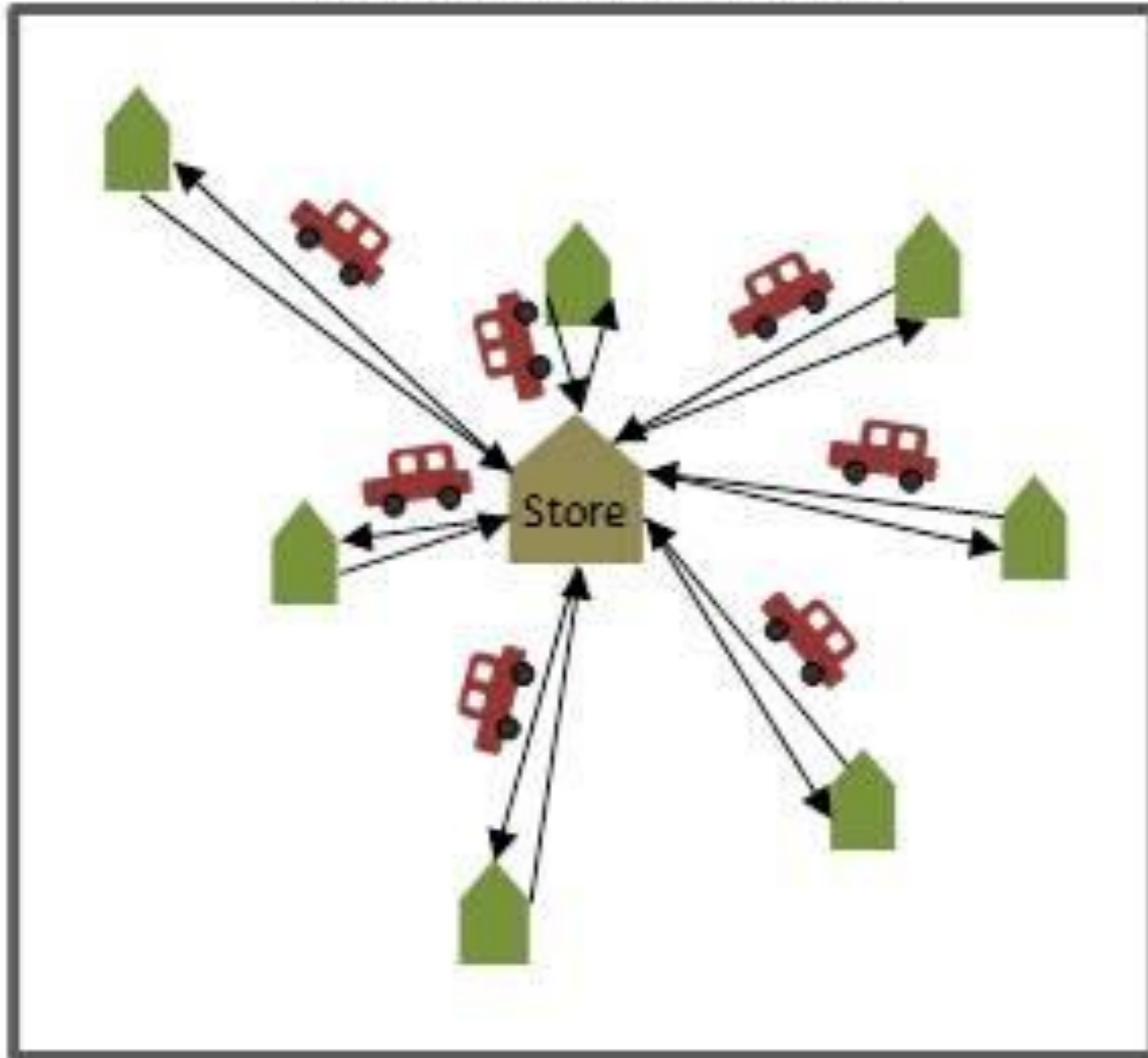
Percent of Personal Daily Trips



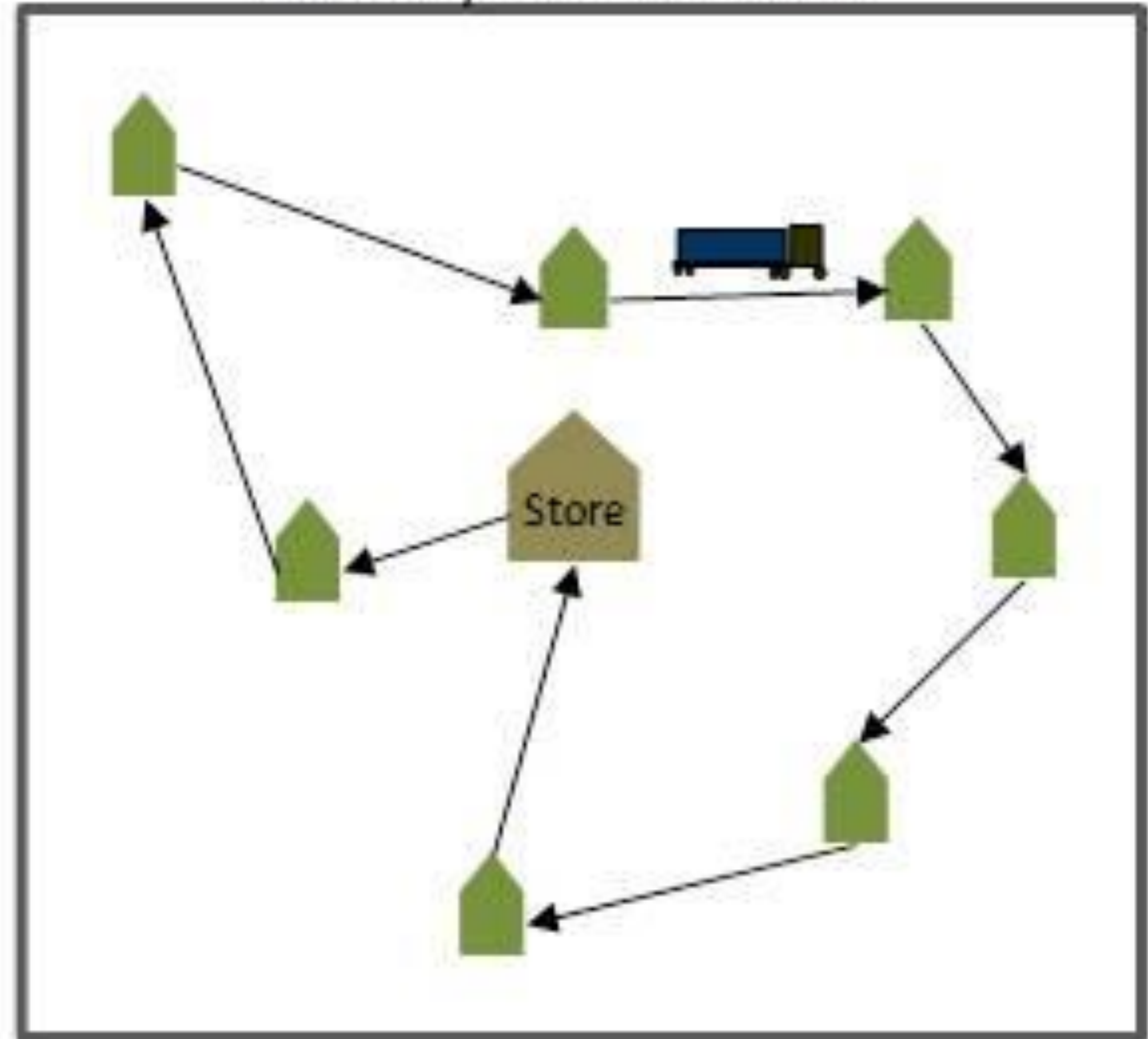
Source: National Household Travel Survey



Personal Vehicle Travel



Delivery Vehicle Travel

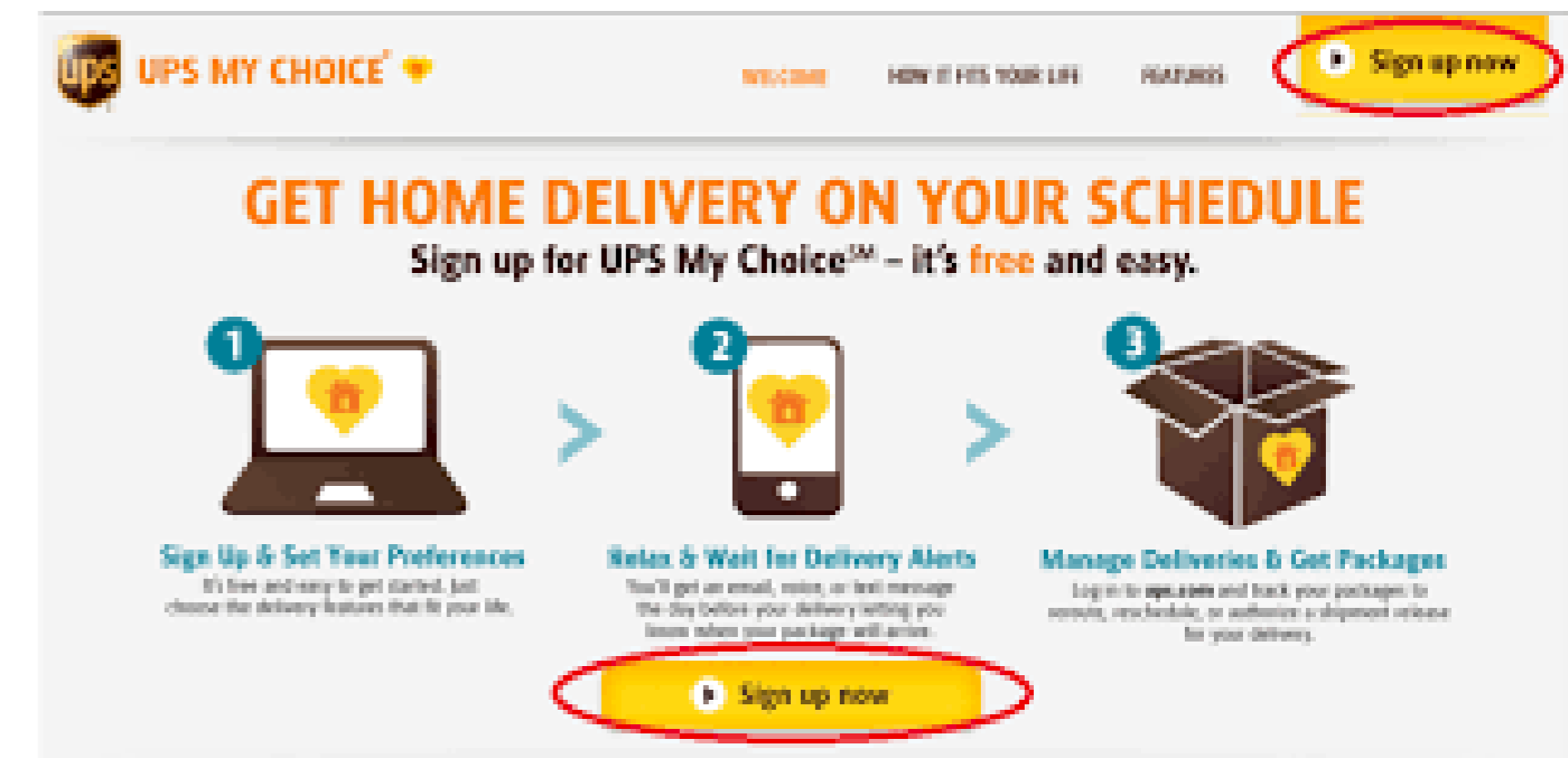


Treasure Truck



Impacts on Traditional Parcel and Delivery

- Revenue growth exceeding national economic growth
 - US 10% in 2015
- Employment growth
 - 4,200 jobs in June 2017
- Increased attention and competition
 - Entrance of new players (OnTrac)
 - Innovation by traditional players (up to 5% in 2016)
 - Pressure on margins
- Attention from Venture Capital
 - US VC investment in supply chain and logistics startups
\$266 Million in 2013, \$1.75 Billion in Q1 2016



On-Demand Delivery Models Receiving >\$5 Million in Capital

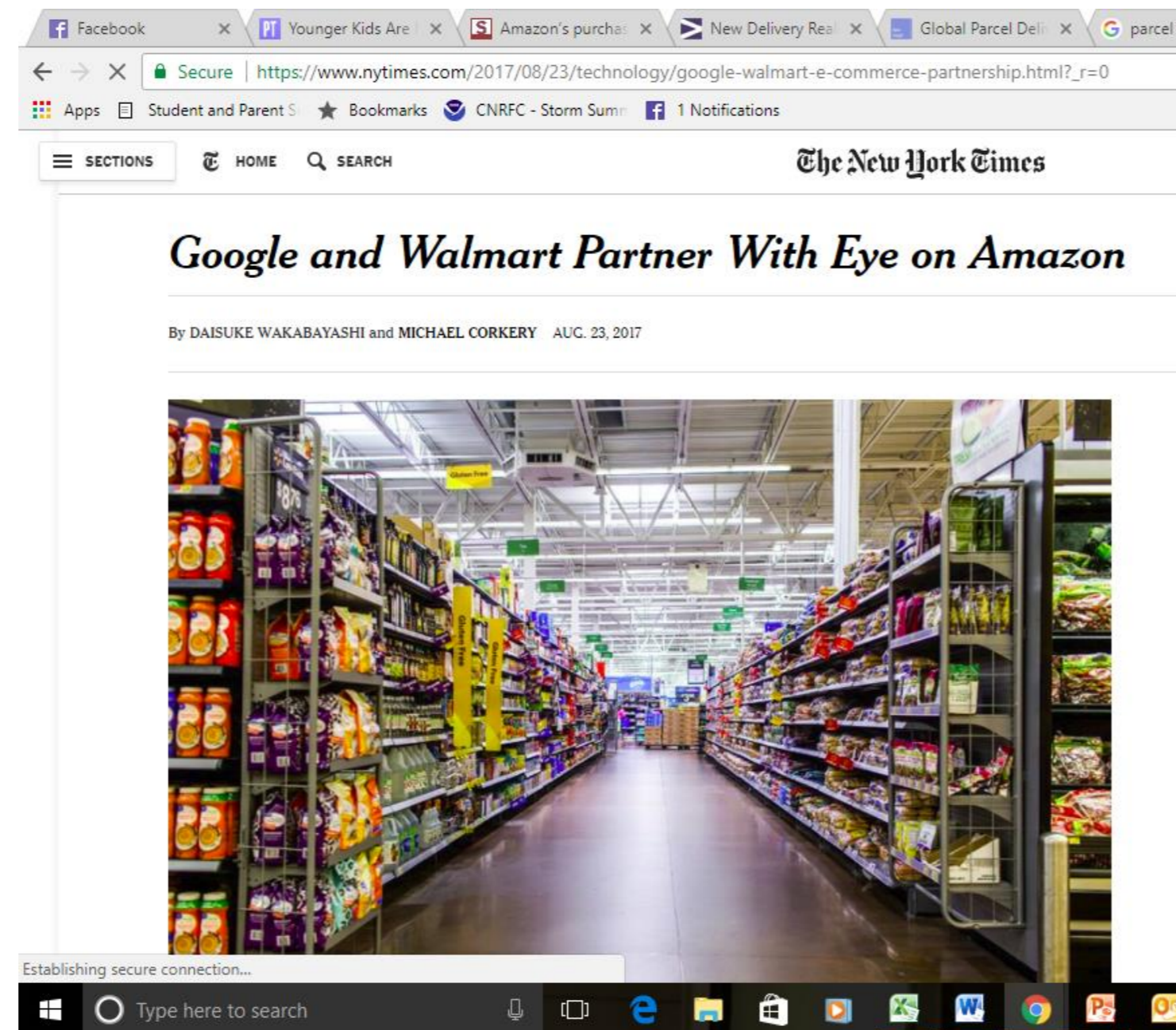
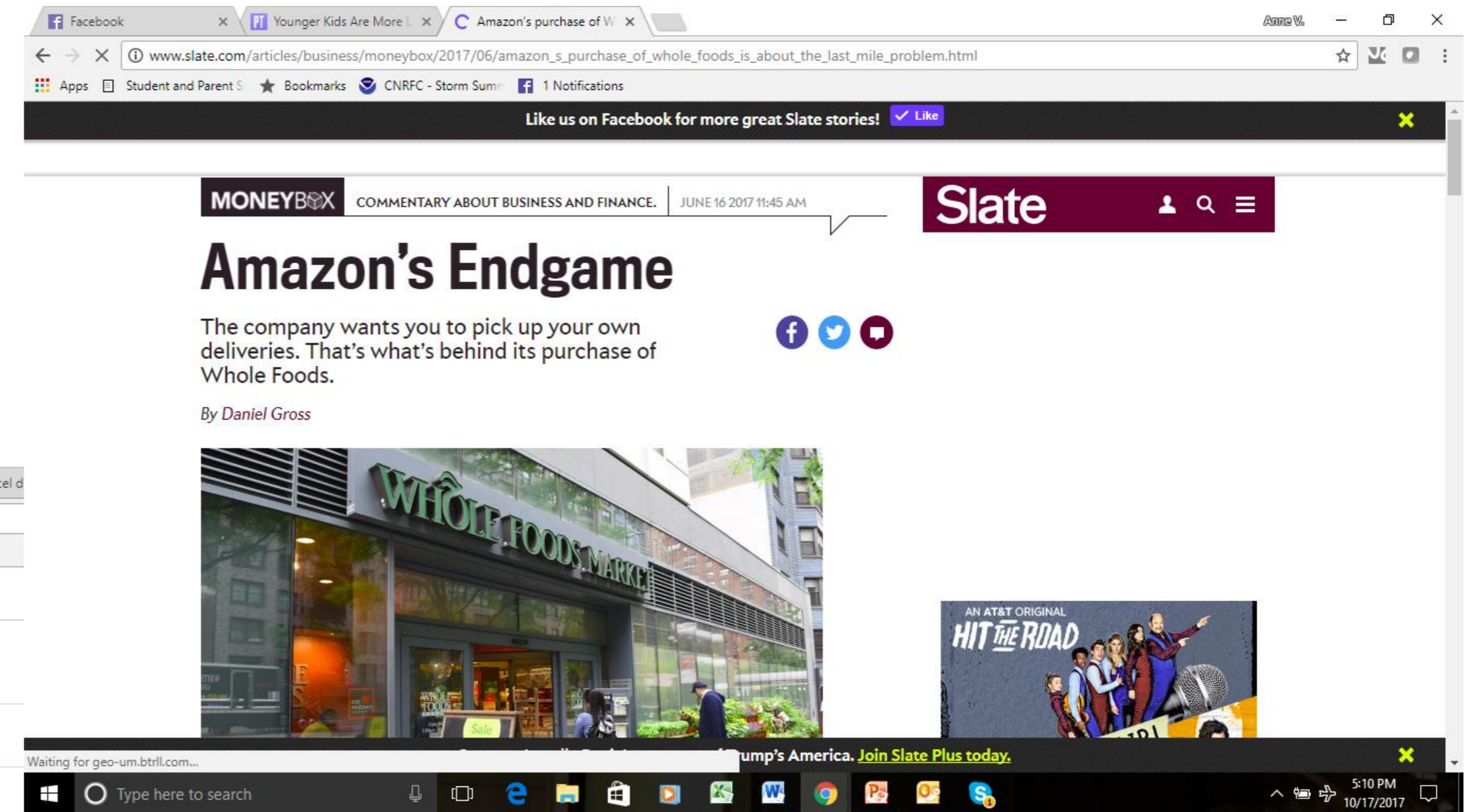
Connect On-Demand	Just Add Delivery	Optimize Real Estate	Eliminate Real Estate
Brings digital-centric acquisition and logistics to traditional on-demand	Adds or enhances delivery layer; requires traditional partners	Removes public infrastructure and/or optimizes industrial space; some add delivery	Removes storefront or office, shifting point of service to customer location
<p>Transportation</p>			

Source: www.techcrunch.com



Impacts on Shippers

- Added cost with uncertain revenue
- Incentives to test business models



Impacts on Cities

- More deliveries to residential locations
 - Neglected in regional freight models
- Increased use of curb and street space for deliveries
 - Cars as freight vehicles
 - As opposed to freight bays
- At a time when
 - Roadway congestion
 - Improving bike/pedestrian infrastructure
 - Responding to new mobility services
- A need for data, knowledge, and solutions
 - Seattle's Urban Freight Lab and New Mobility Playbook

Opportunities for Urban Freight Research

- Collaborations and Tests
- Establish a shared urban freight science
 - **Standardization of terms**
 - Standard metrics or measures
 - Baseline inventories
 - Robust experiments



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Questions?

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