

Consumer Behavior is Changing

What Does It Mean for U.S. Agriculture?

Jayson L. Lusk

**Distinguished Professor and Head
Department of Agricultural Economics**

Purdue University

jayson.lusk@gmail.com

www.jaysonlusk.com

[@JaysonLusk](#)

Main Demand Drivers

- **Population**
- **Income**
 - Quantity
 - Quality
- **Innovation (price and mix of product offerings)**
- **Who is the “decider”?**

South Korea's fertility rate
falls to a record low

The country's birth rate is now less than one child per woman

The
Economist

The Atlantic

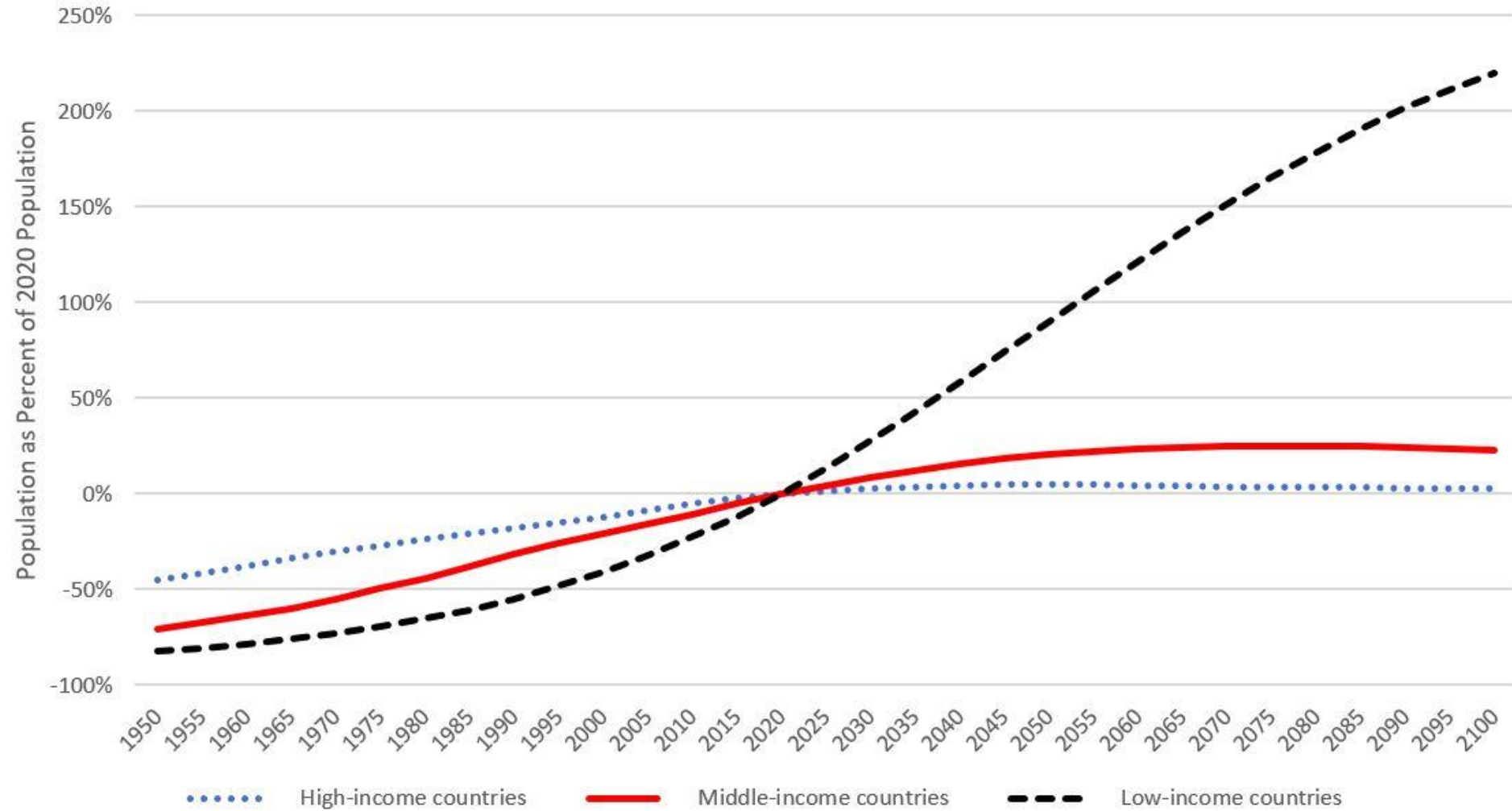
Liberal Societies Have Dangerously Low Birth Rates

The New York Times

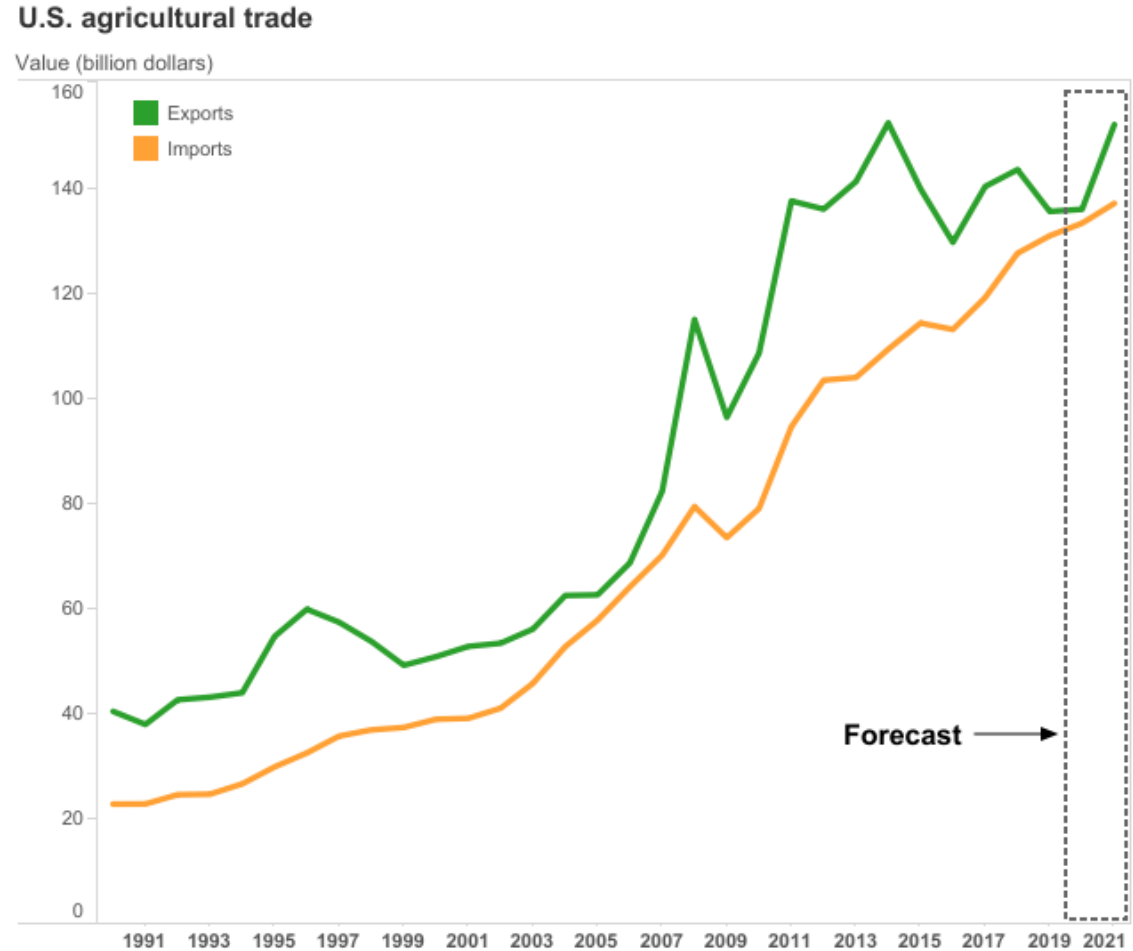
The Chinese Population Crisis

How Communist cruelty and Western folly built an
underpopulation bomb.

Population Projections



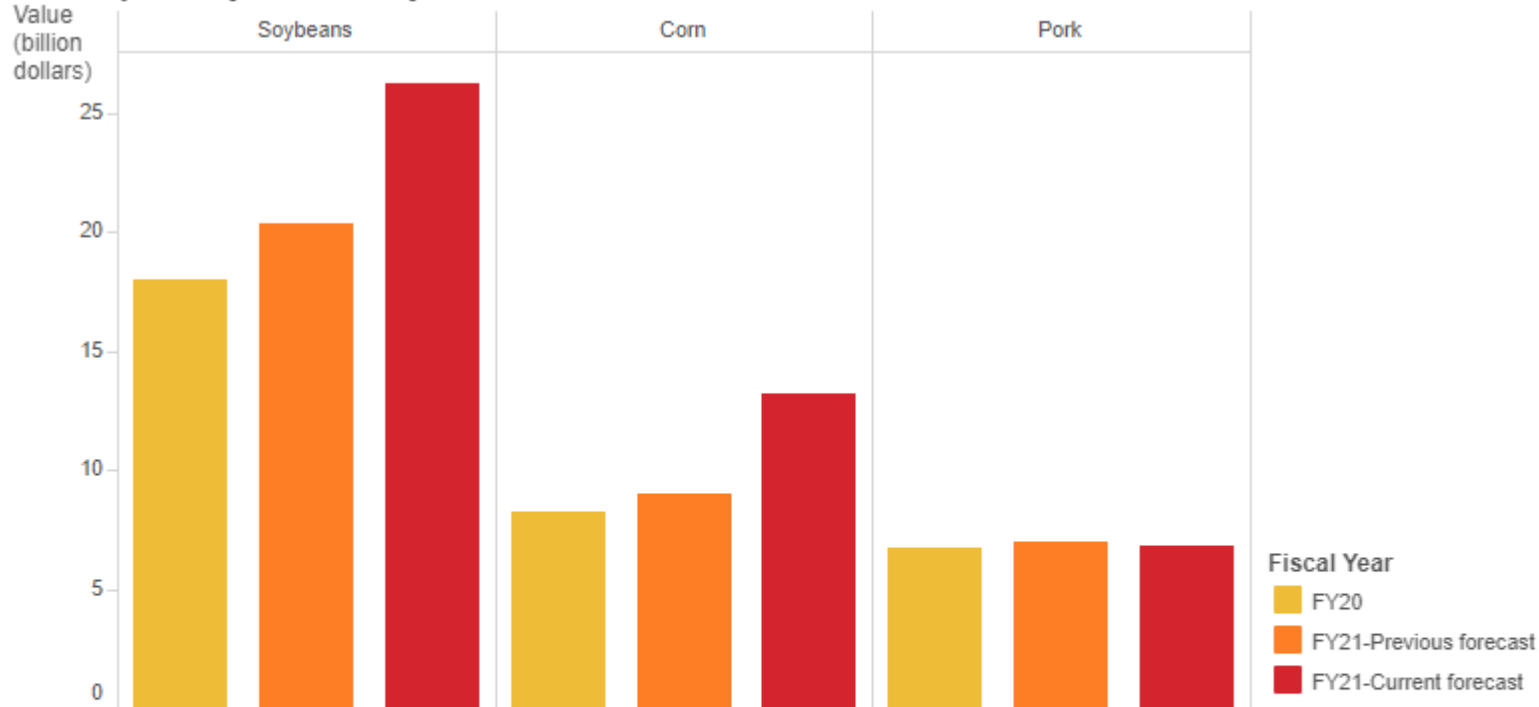
Population-driven demand growth will come from abroad



Source: USDA, Economic Research Service and USDA, Foreign Agricultural Service analysis and forecasts using data from U.S. Department of Commerce, Bureau of the Census.

Population-driven demand growth will come from abroad

U.S. exports by commodity

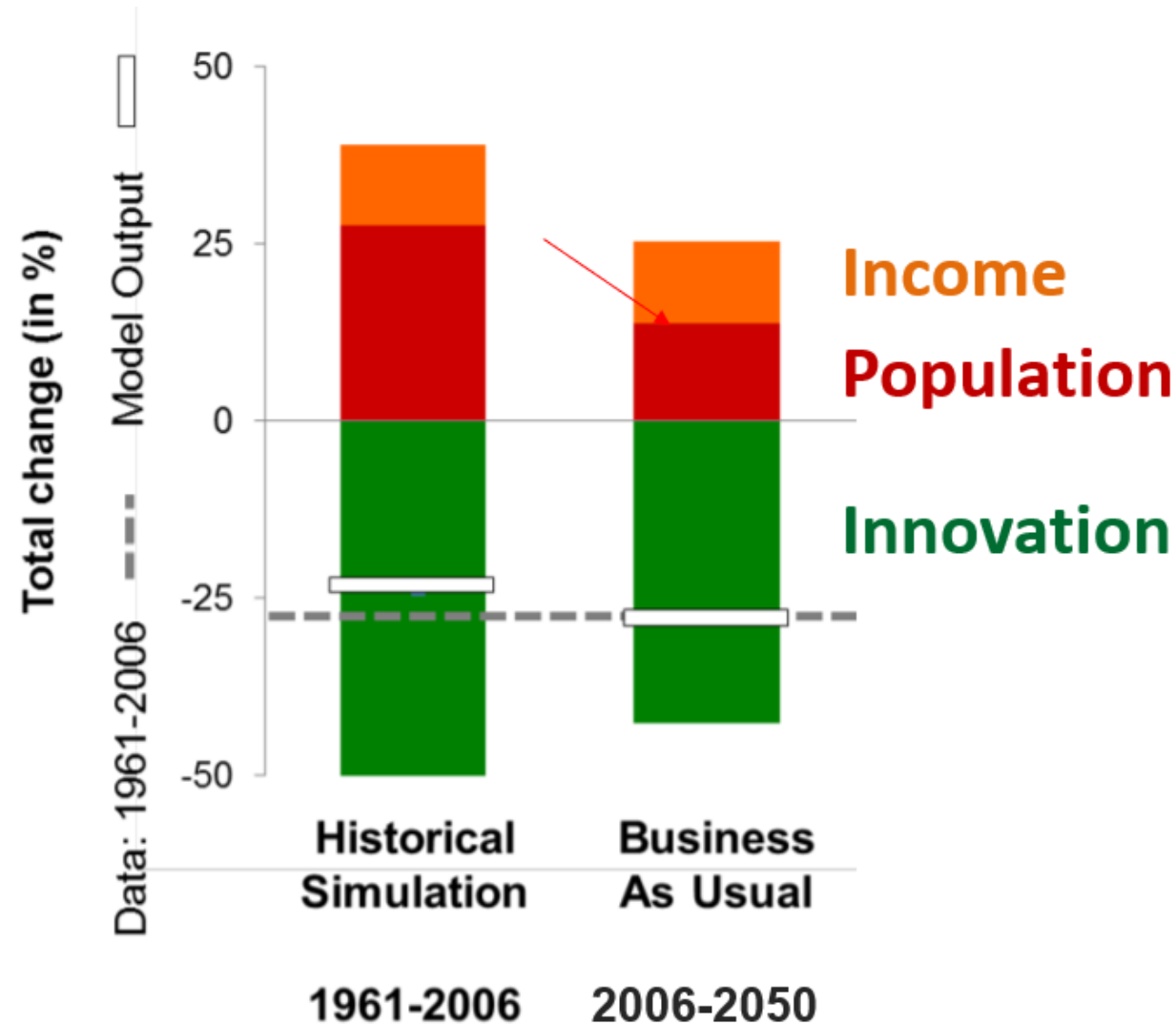


Note: Fiscal year (FY) covers October 1 of the previous calendar year to September 30 of the listed year. Values for some commodities are included in more than one figure (e.g., if both categories are selected, Fruits, fresh appears as a separate category and is also included in Horticultural products). To see how commodities are grouped, please refer to Table 3 of the Outlook for U.S. Agricultural Trade.

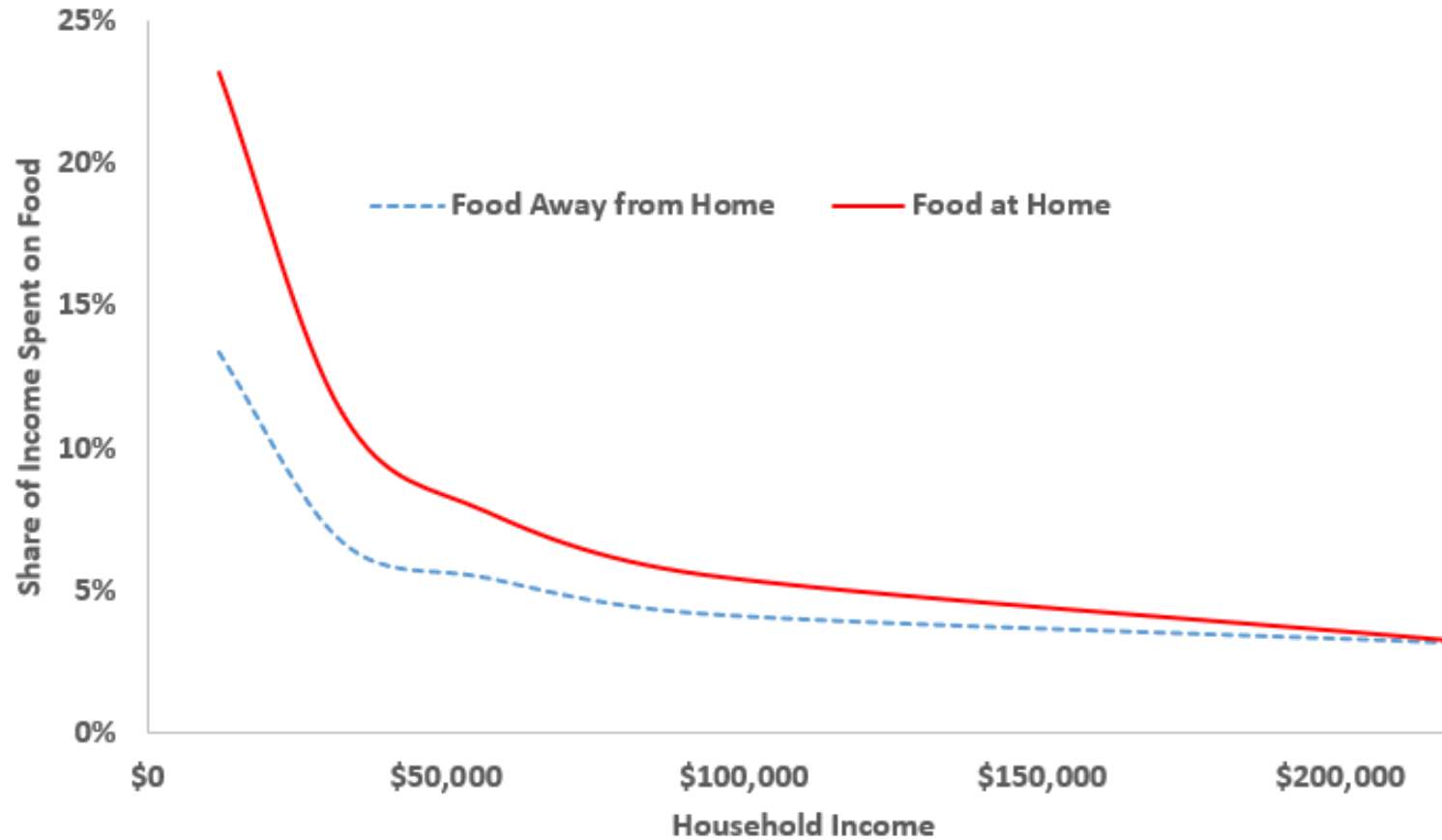
Trade forecasts for the fiscal year are released quarterly. FY21-Previous forecast was released in August 2020, and FY21-Current forecast was released in November 2020.

USDA, Economic Research Service and USDA, Foreign Agricultural Service analysis and forecasts using data from U.S. Department of Commerce, Bureau of the Census.

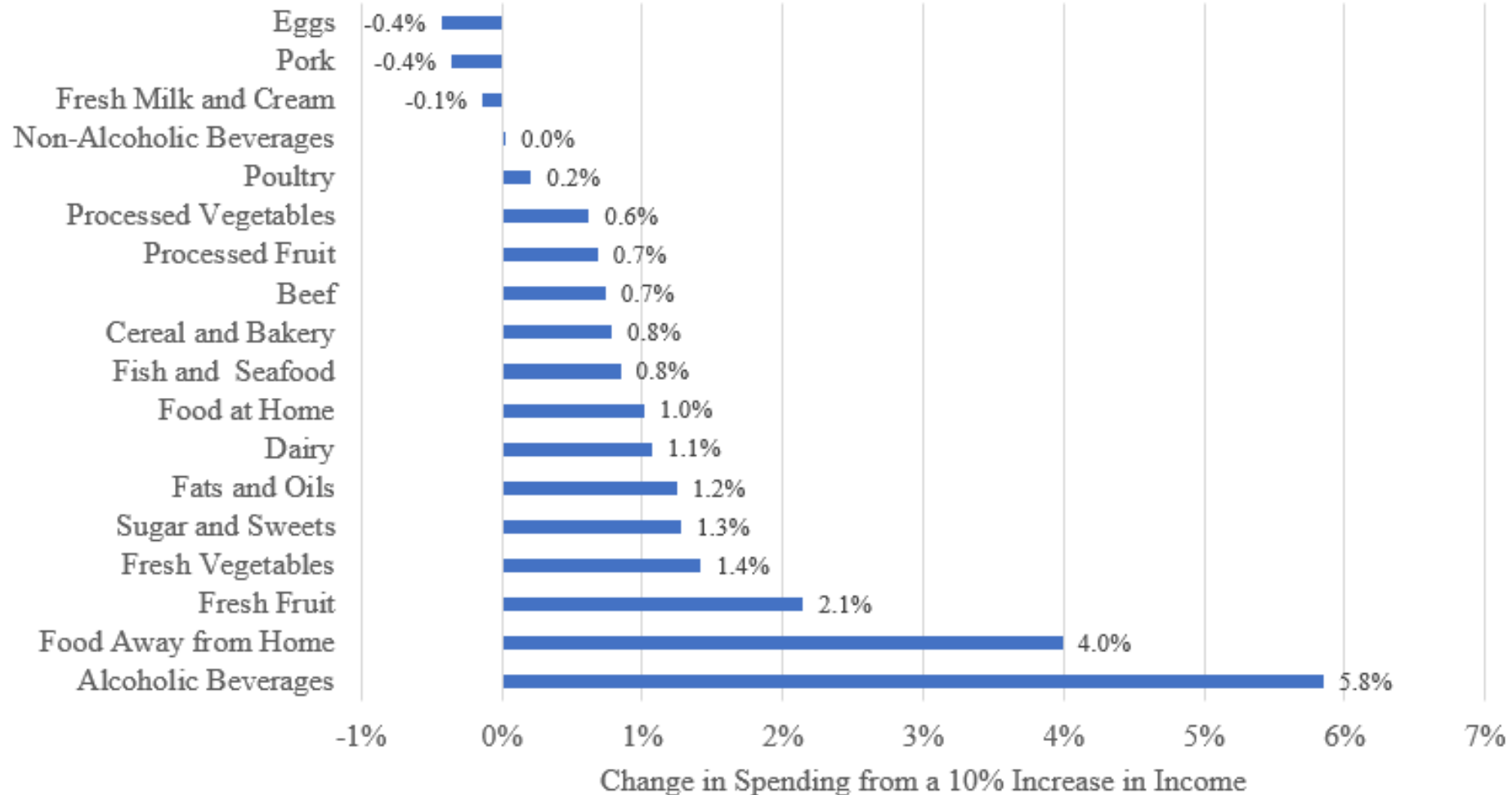
Net effects of population, income, & innovation



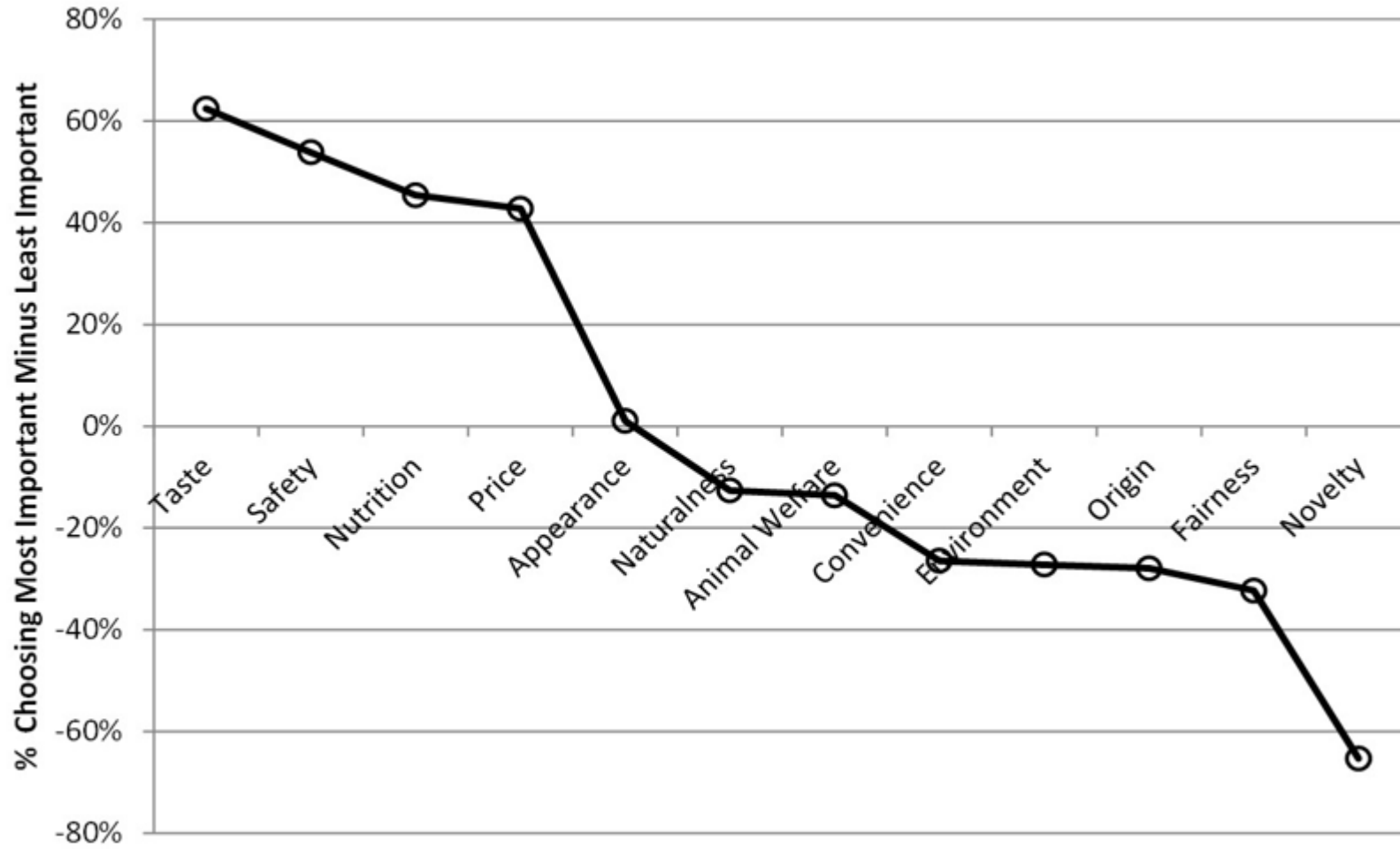
Income and Food Demand



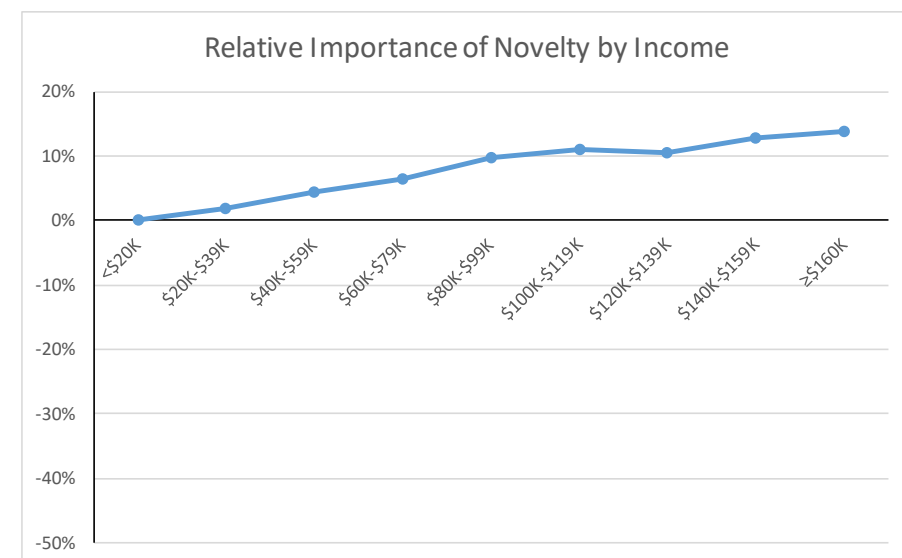
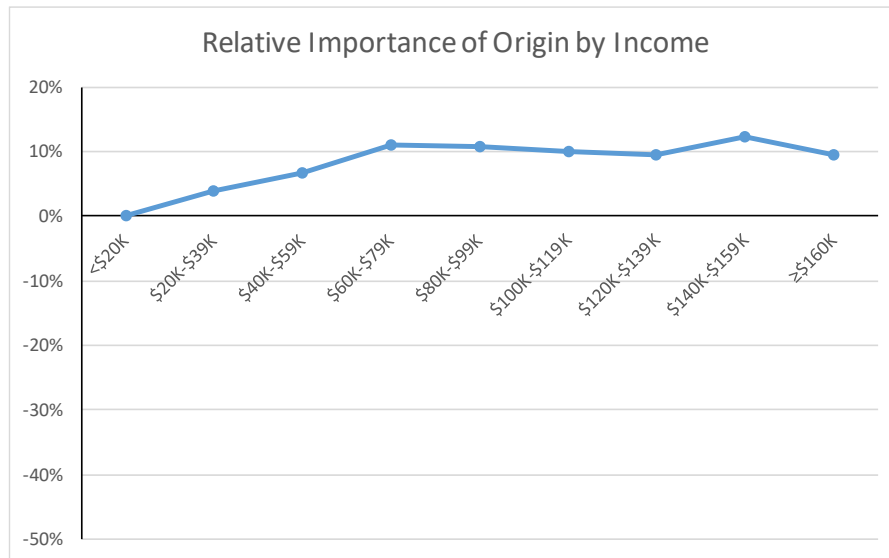
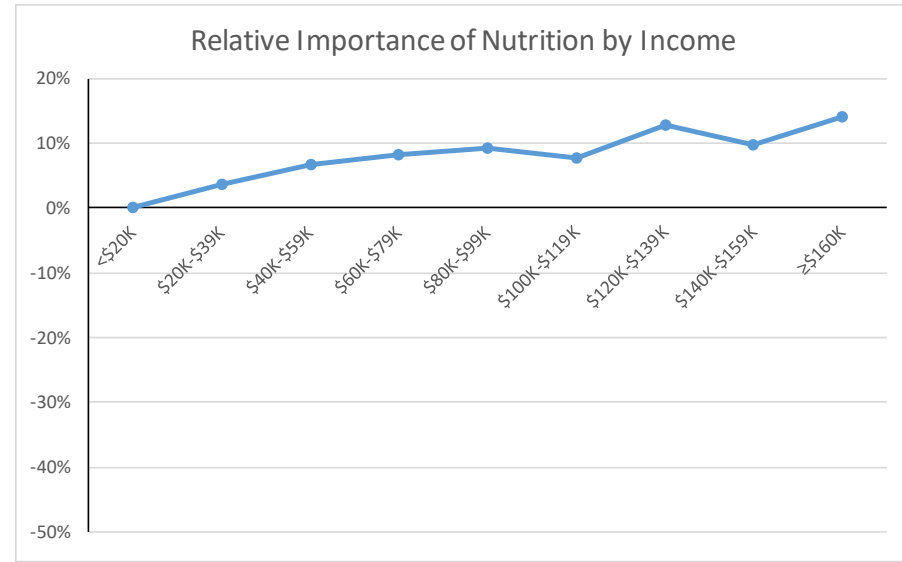
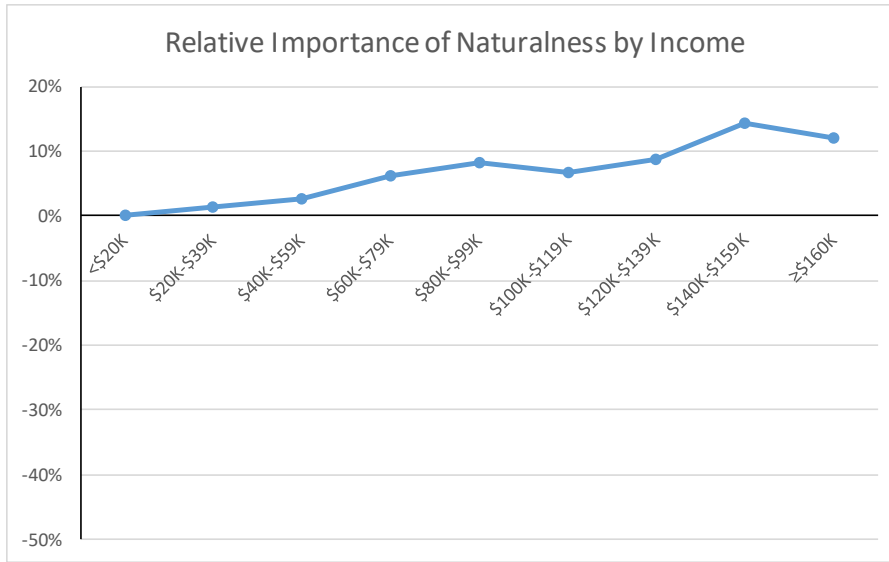
Expected spending changes from 10%↑ in income



U.S. Consumers' Food Values

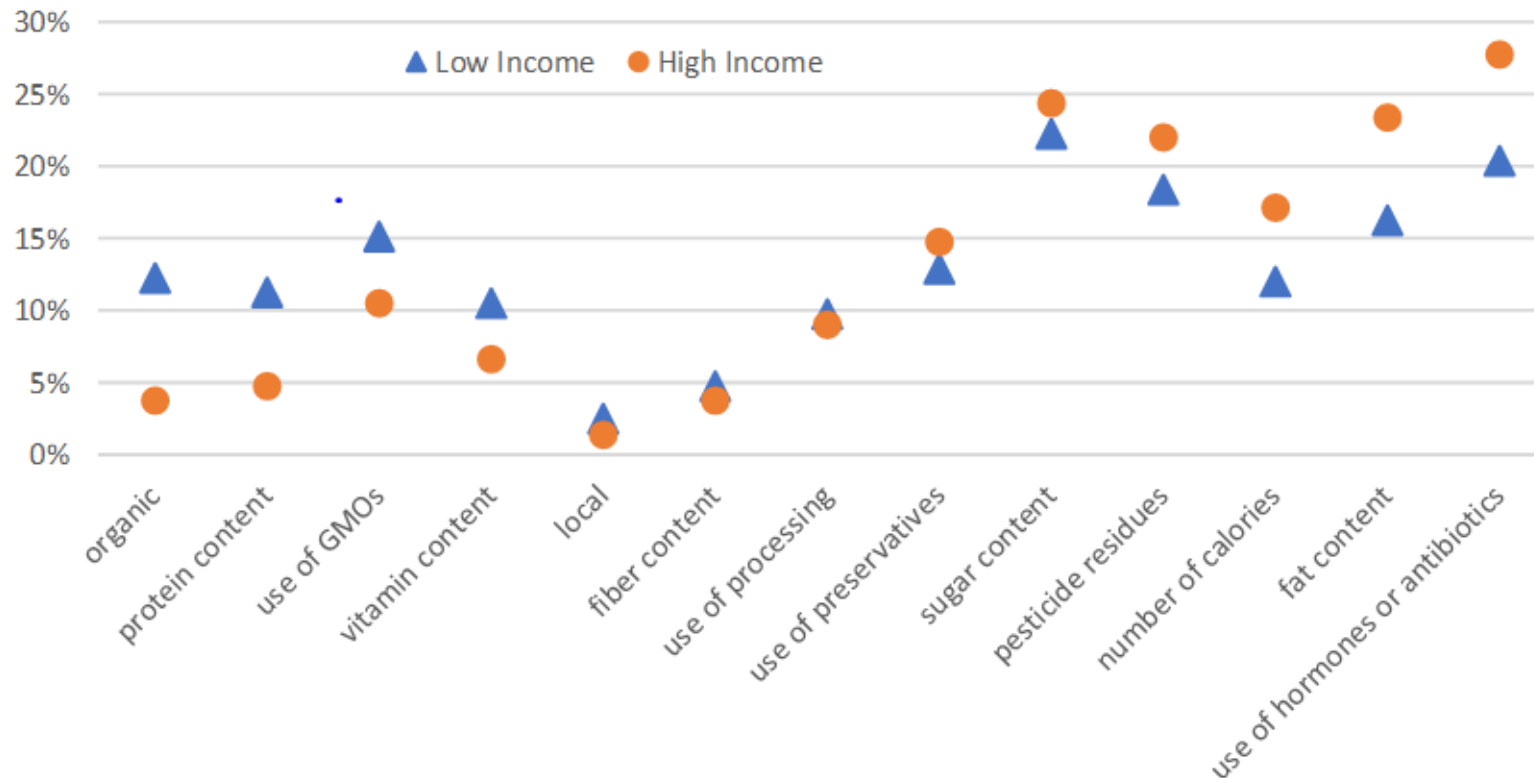


Food Values of the U.S. Rich



Income and Beliefs

Percent of Consumers Who Believe Issue Affects Whether a Food is Considered Healthy (pick three)

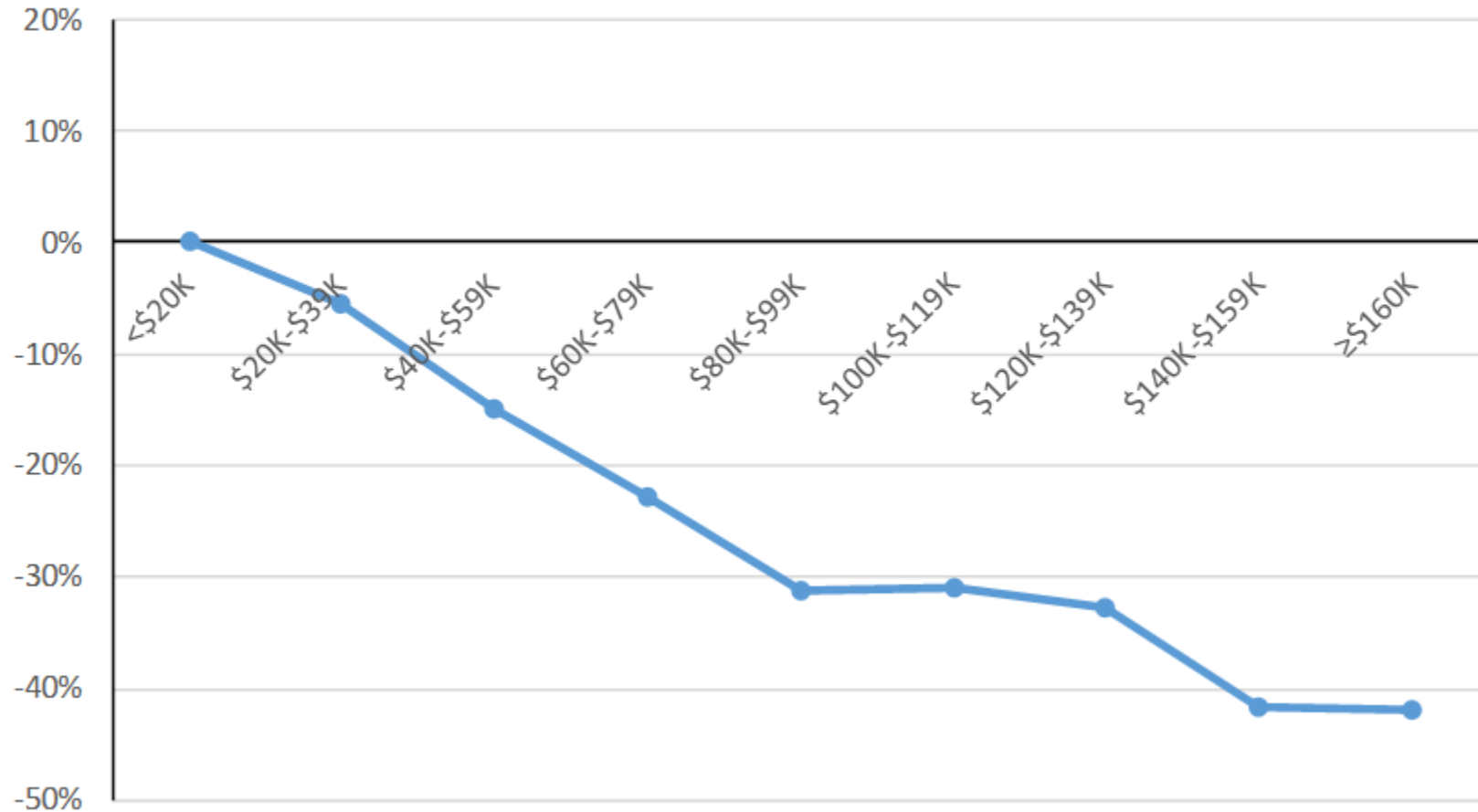


More associated with “healthy” among low income consumers

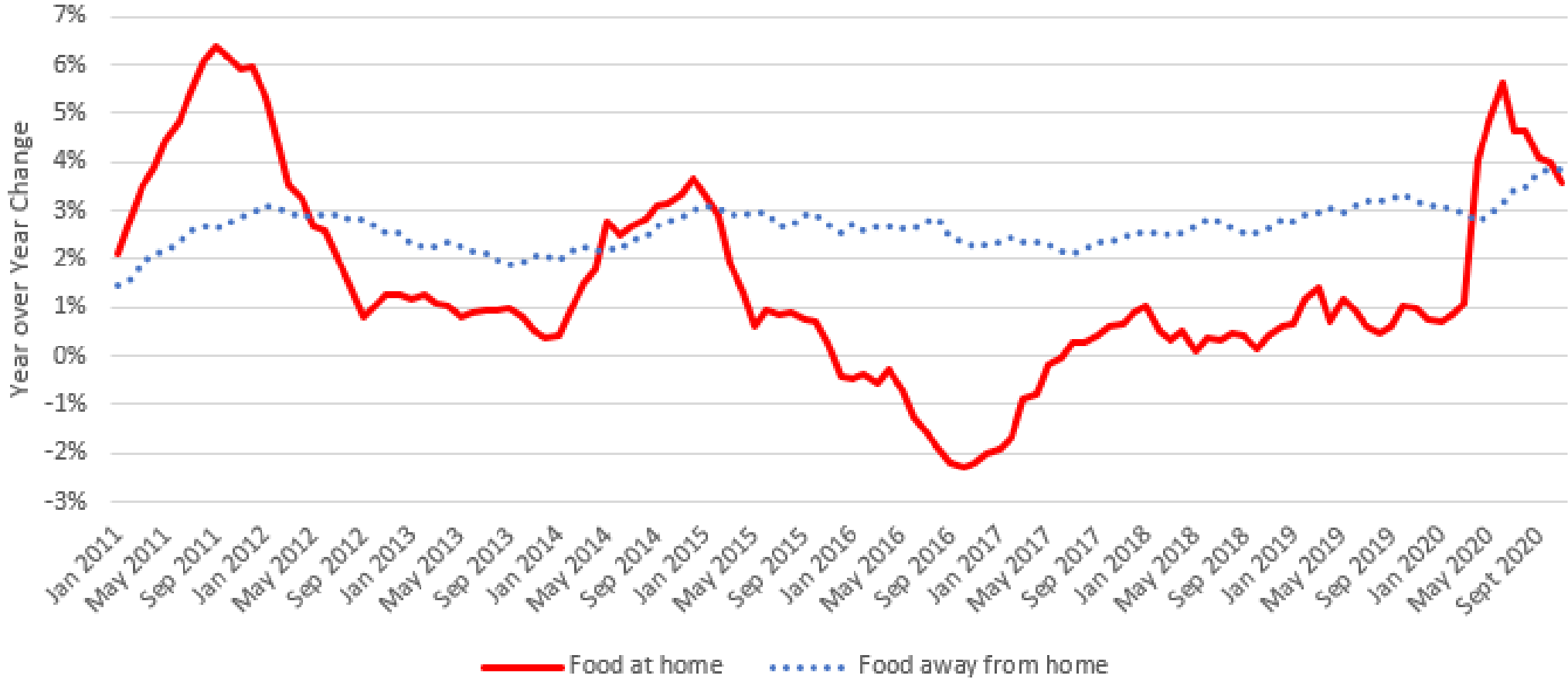
More associated with “healthy” among high income consumers

Food Values of the U.S. Poor

Relative Importance of Price by Income

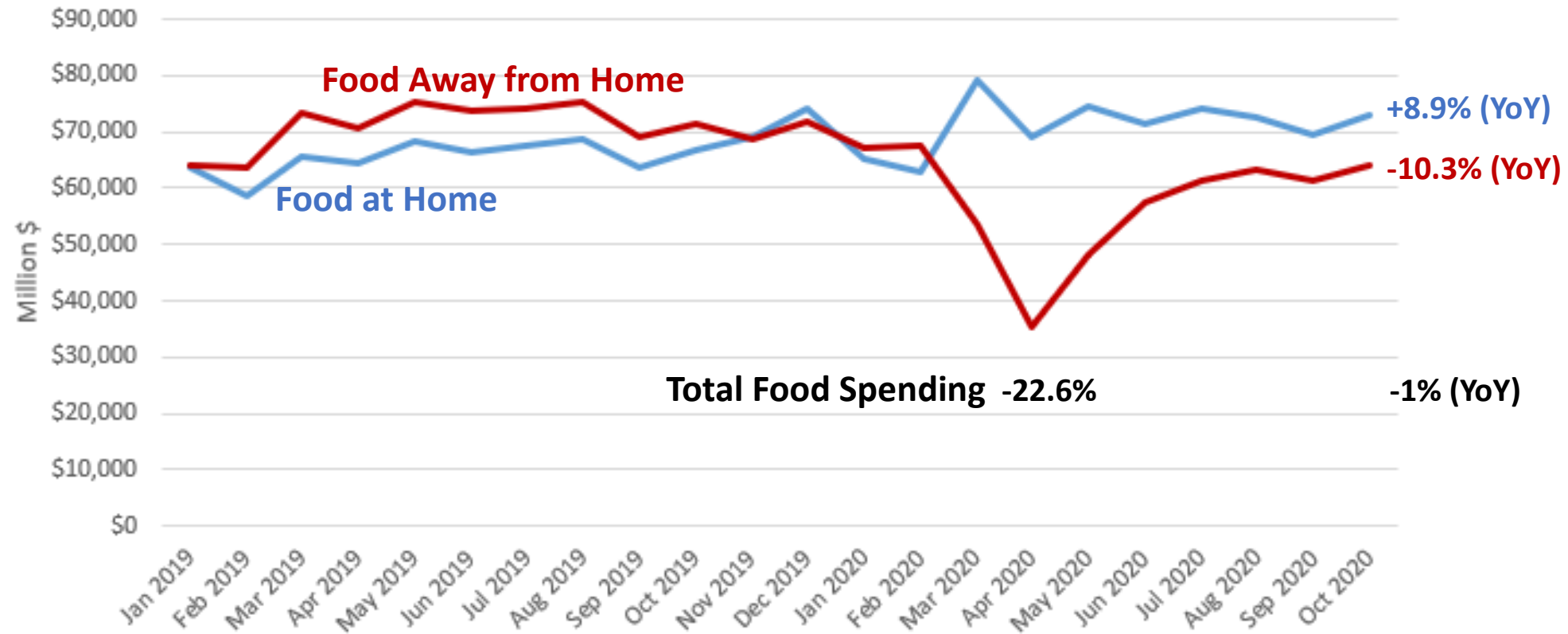


Annual Change in Retail Food Prices



Source: Bureau of Labor Statistics

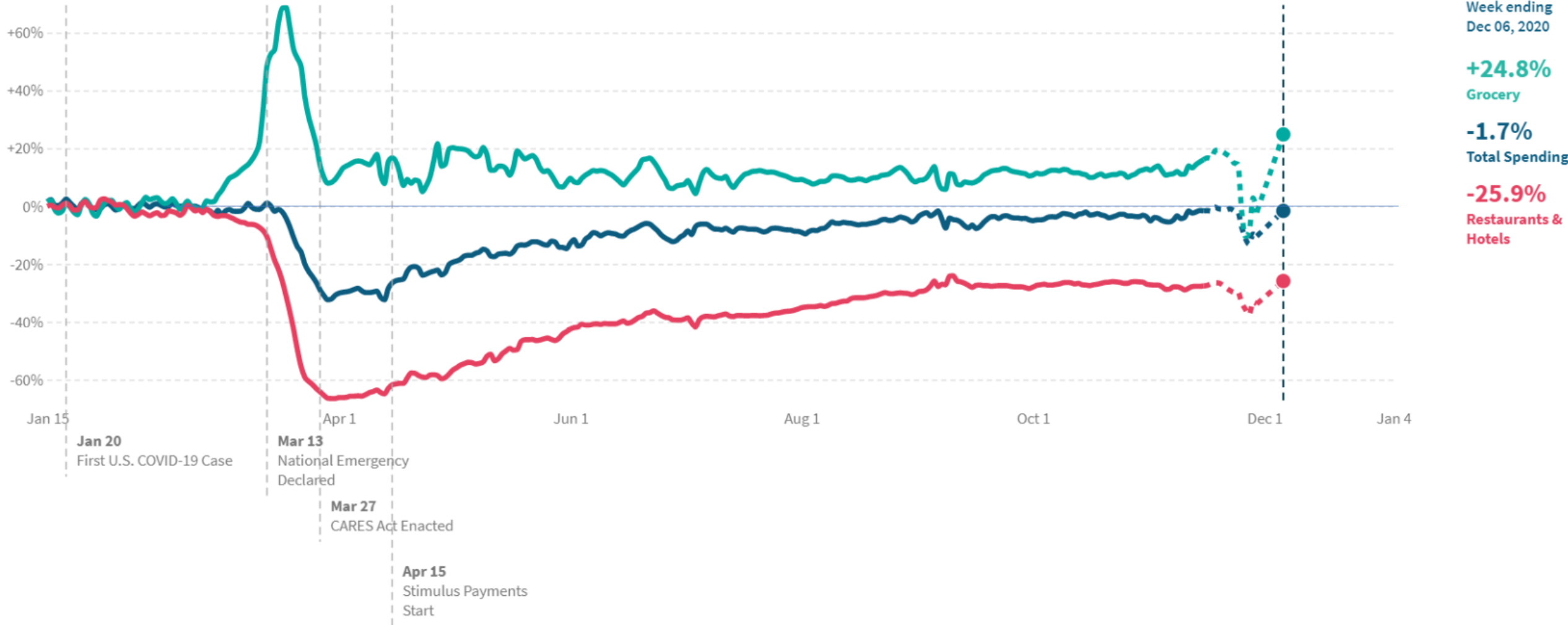
Consumer Food Spending – All US



Consumer Spending – All US

Percent Change in All Consumer Spending*

In the United States, as of December 06, 2020, total spending by all consumers decreased by 1.7% compared to January 2020.



Total Consumer Spending – IN, IL, and NY

Percent Change in All Consumer Spending*

In **Indiana**, as of **December 06 2020**, total spending by all consumers **increased** by **5%** compared to January 2020.



Total Consumer Spending – High vs. Low Income

Percent Change in All Consumer Spending*

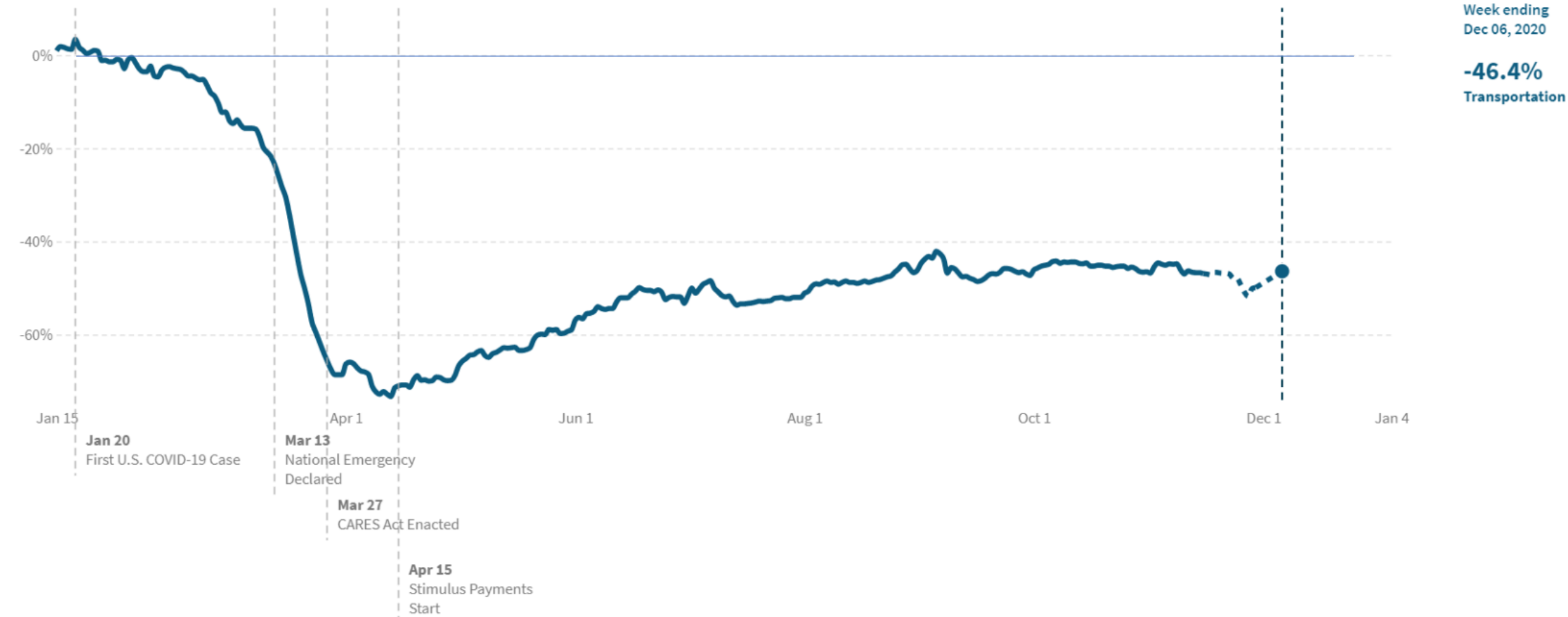
In the United States, as of December 06 2020, total spending by low-income consumers increased by 2.5% compared to January 2020.



Total Consumer Spending – Transportation

Percent Change in All Consumer Spending*

In the United States, as of December 06 2020, transportation spending by all consumers decreased by 46.4% compared to January 2020.

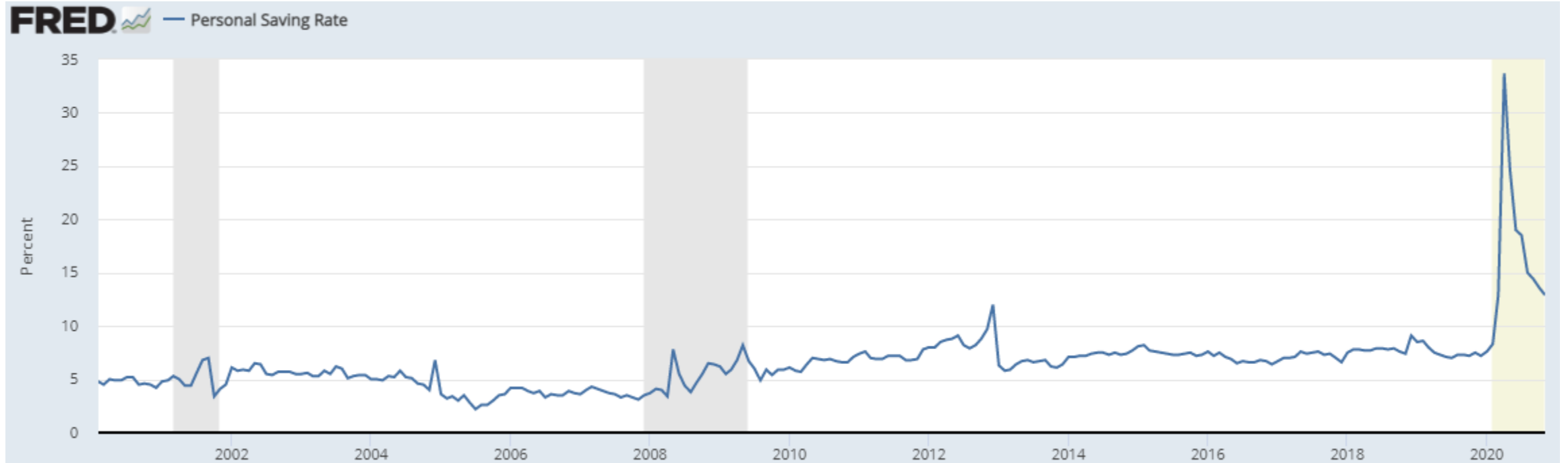


Total Personal Disposable Income



Source: <https://fred.stlouisfed.org/series/DSPIC96>

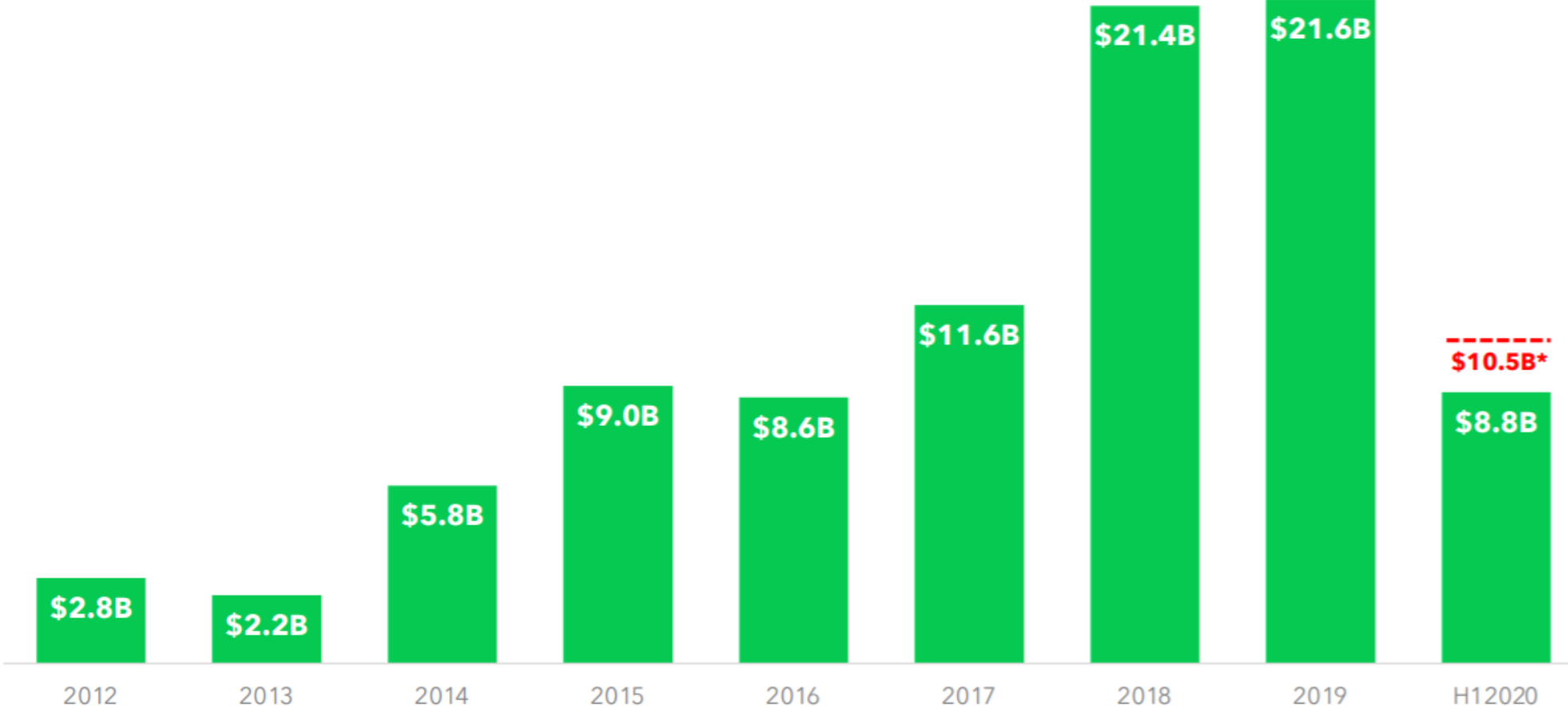
Personal Savings Rate (% of Disposable Income)

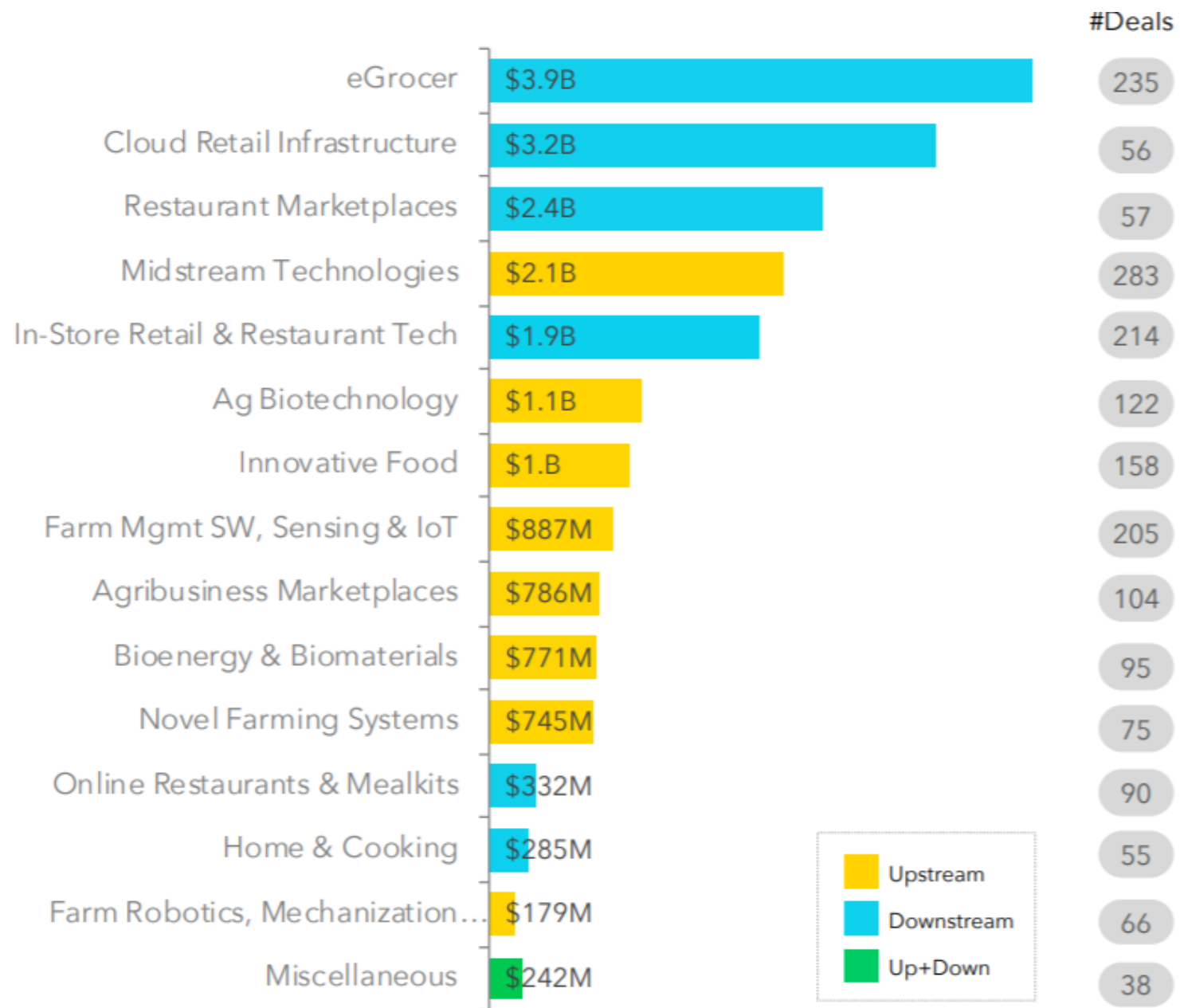


Ag and Food Tech Innovation

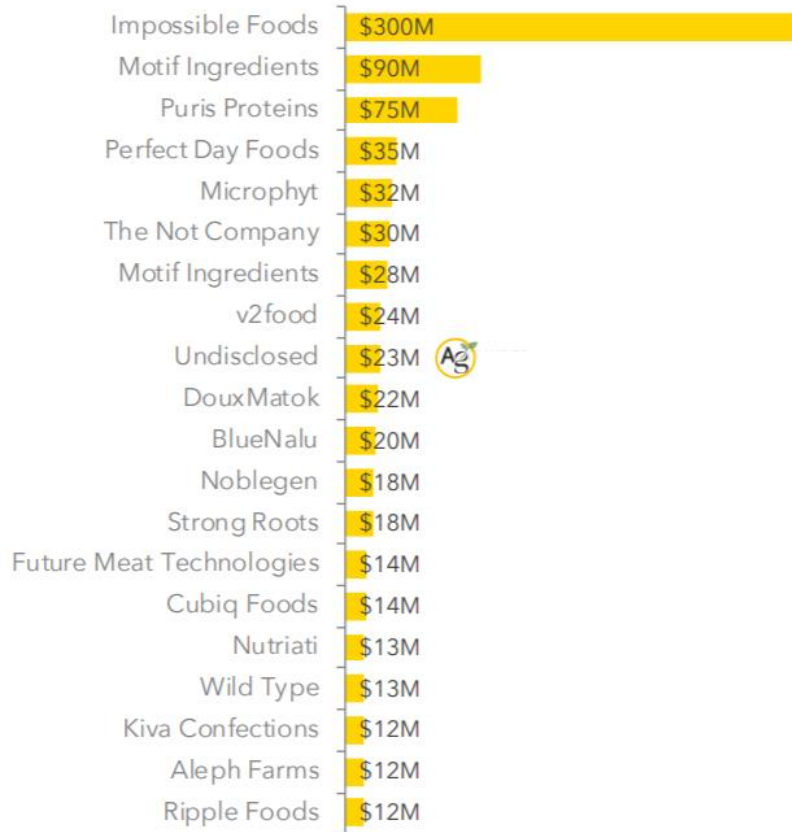
- **Public investments in U.S. agricultural research are stagnant**
- **Private investments remain strong**
- **Historical focus on food security is shifting to focus on sustainability and quality**
- **New entrants into food and ag tech investing space**

Investment in AgriFood Tech startups

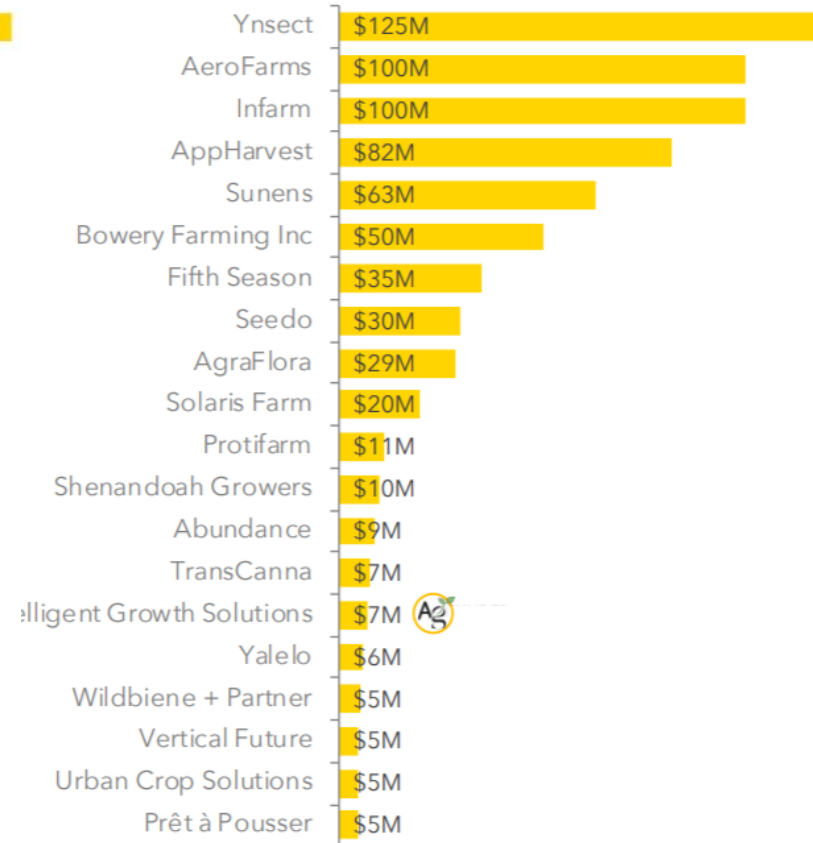




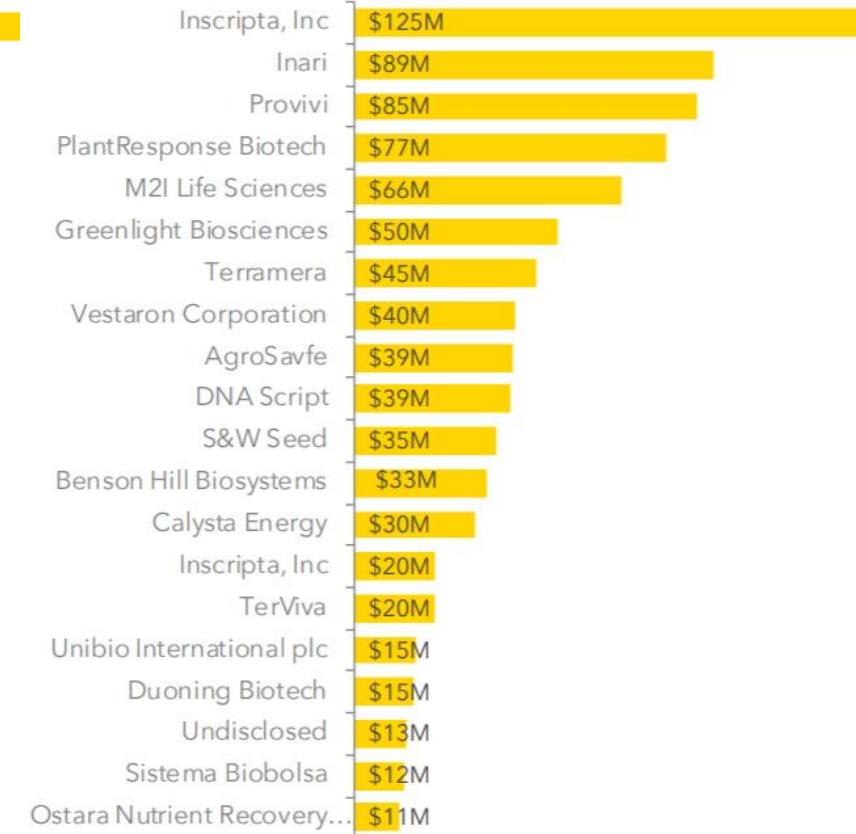
Top Food Deals



Top Farm System Deals

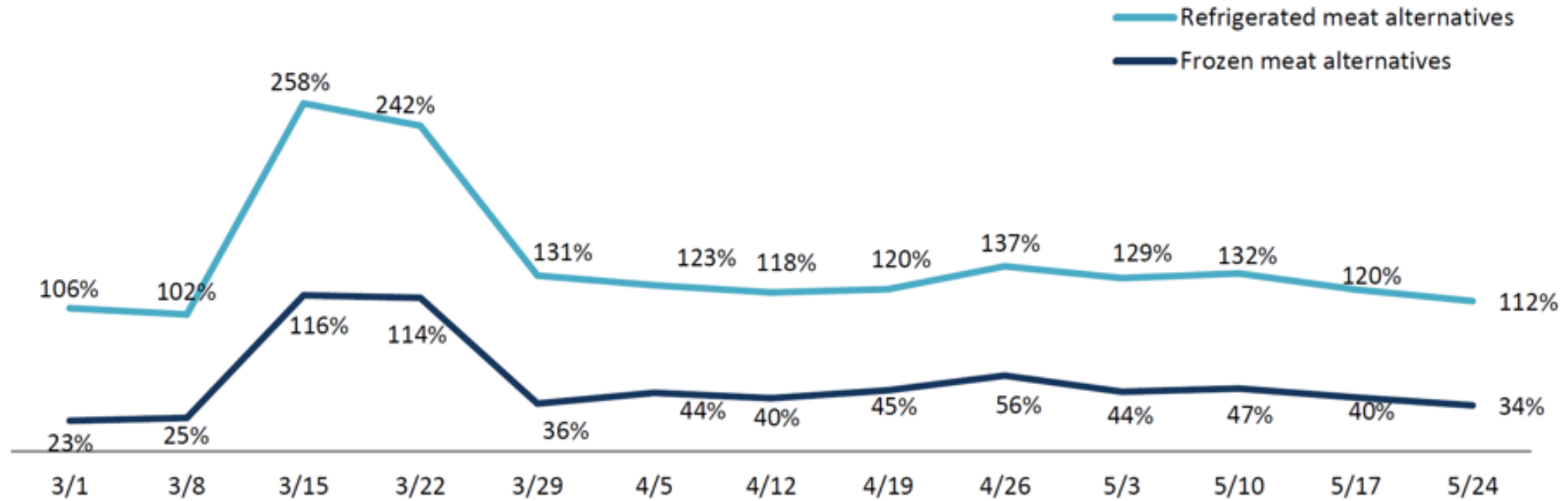


Top Ag Biotech Deals

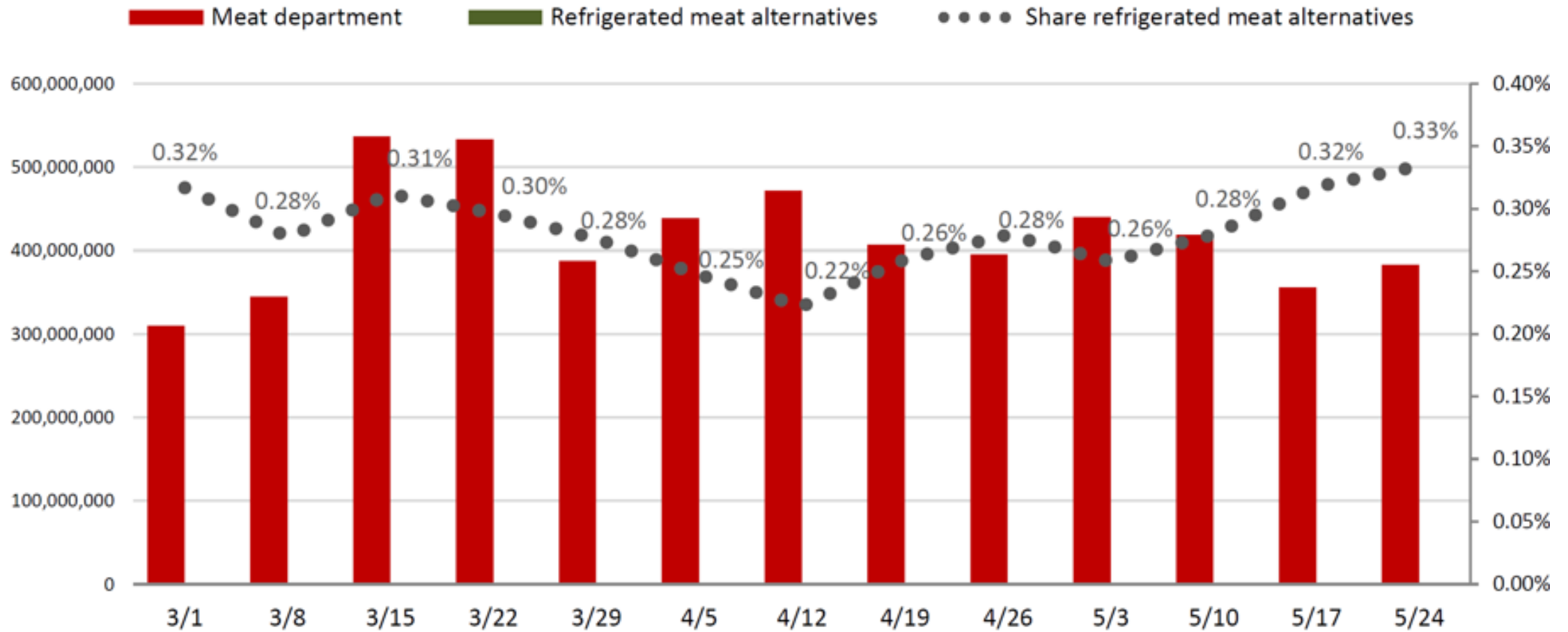


Curious trends in plant-based meat sales

\$ growth meat alternatives refrigerated and frozen vs. comparable week in 2019



Lbs sales meat department versus refrigerated plant-based meat alternatives



A Pre-COVID Study

Which burger option would you buy?



\$5.99
Lab-grown beef



\$5.99
Plant-based using pea protein



\$5.99
Plant-based using animal-like proteins produced by yeast



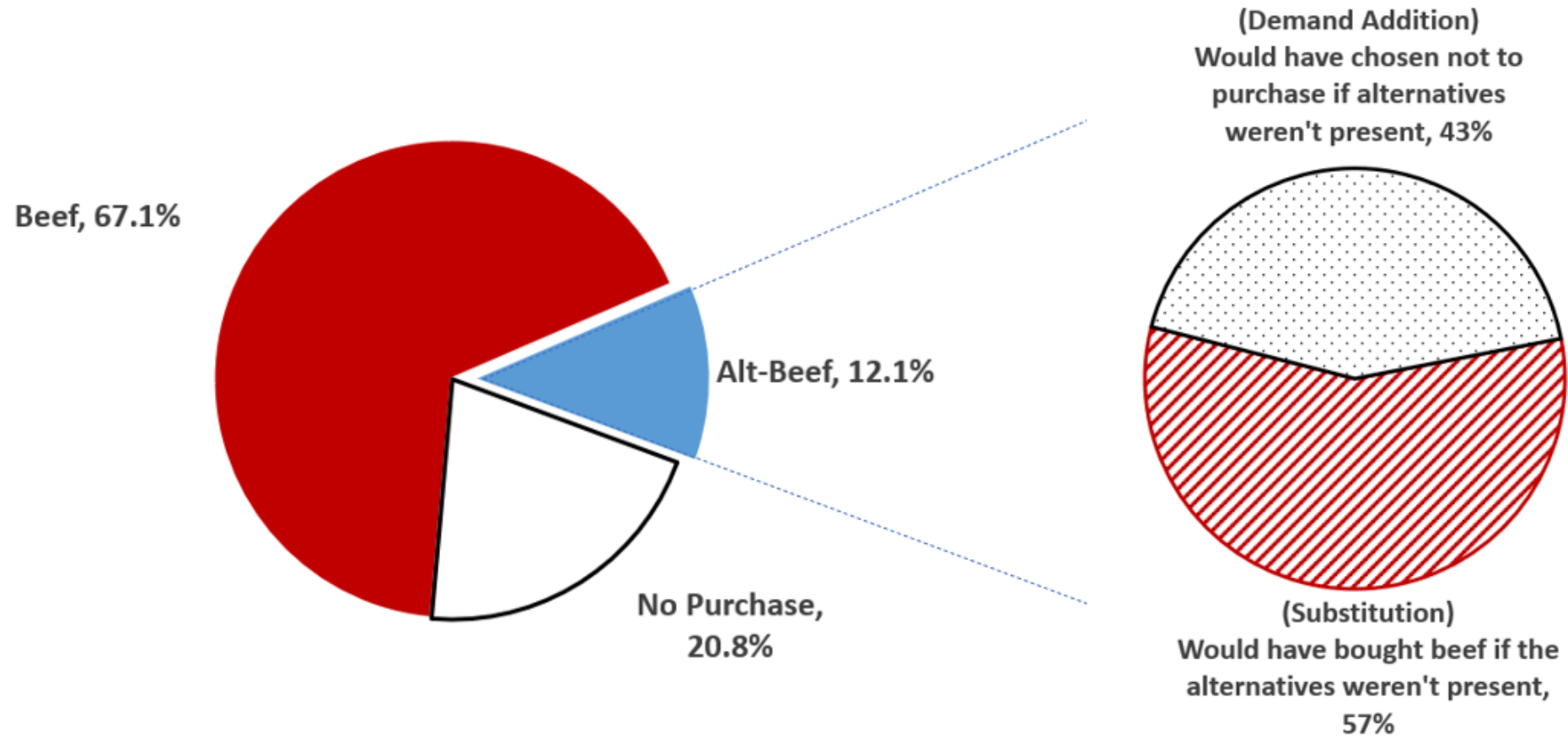
\$5.99
Farm raised beef



If these were the only options,
I would not buy any



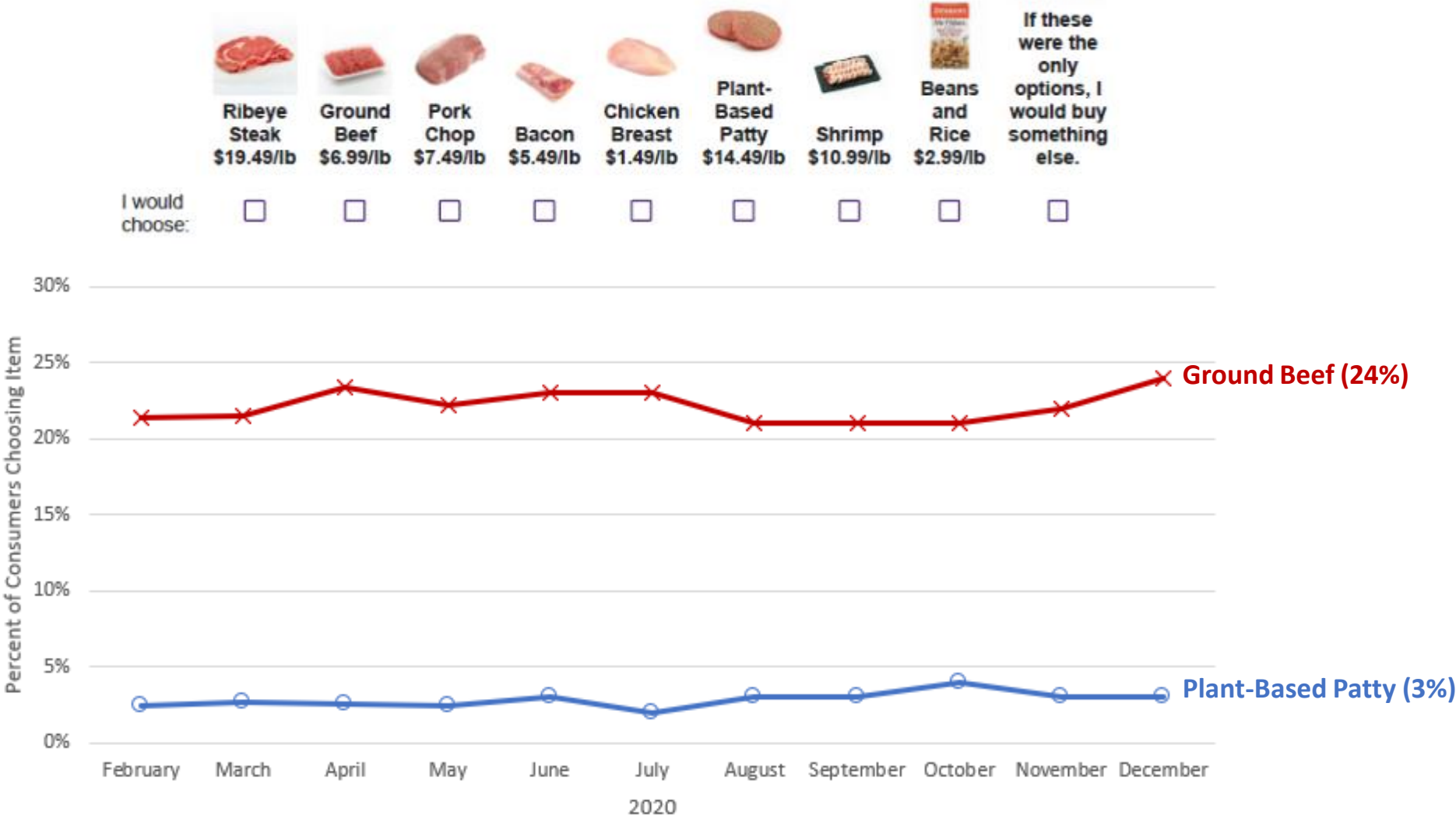
Demand Addition or Substitution?



Who wants alt-meat?

Characteristic	Beef Buyers (N=1360)	Alt-Beef Buyers (N=470)	Difference
% Vegetarian	1.9%	25.5%	-23.6%
% with Children under 12	25.8%	36.8%	-11.0%
% with BS degree or higher	33.4%	40.0%	-6.6%
% Female	47.1%	46.2%	0.9%
% with Household Income < \$40,000	19.5%	18.1%	1.4%
% with Household Income between \$40,000 and \$80,000	33.5%	31.9%	1.5%
% with Household Income between \$80,000 and \$120,000	13.5%	15.3%	-1.9%
% with Household Income > \$120,000	8.2%	12.3%	-4.1%
Average age in years	48.04	40.33	7.70
% younger than 30 years	18.6%	37.2%	-18.6%
# people in Household	2.49	2.57	-0.07
% residing in Northeast	17.7%	21.3%	-3.6%
% residing in Midwest	22.9%	17.4%	5.4%
% residing in South	38.6%	38.1%	0.5%
% residing in West	20.8%	23.2%	-2.4%

Trends in Plant-Based Meat Preferences

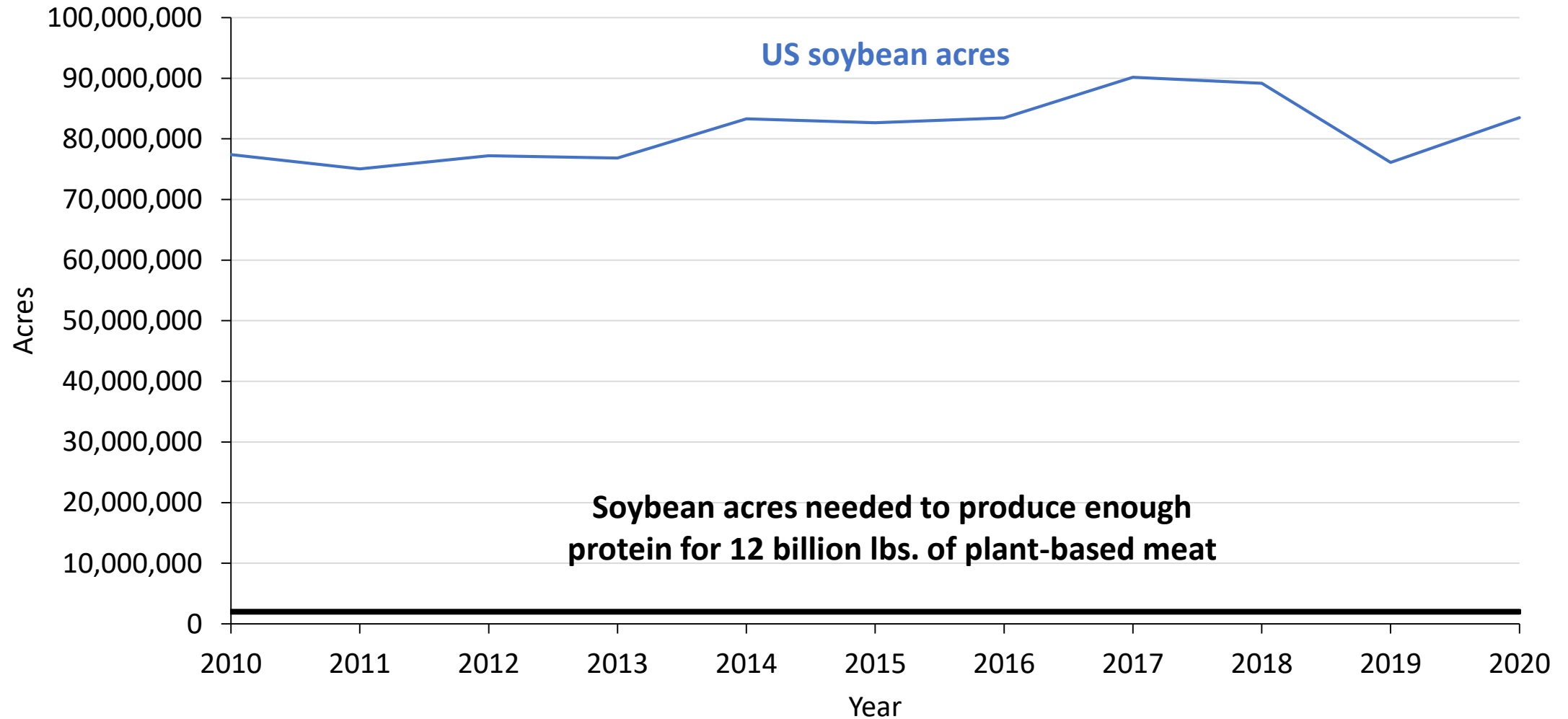


Source: Tonsor and Lusk, Meat Demand Monitor: <https://agmanager.info/livestock-meat/meat-demand/monthly-meat-demand-monitor-survey-data>

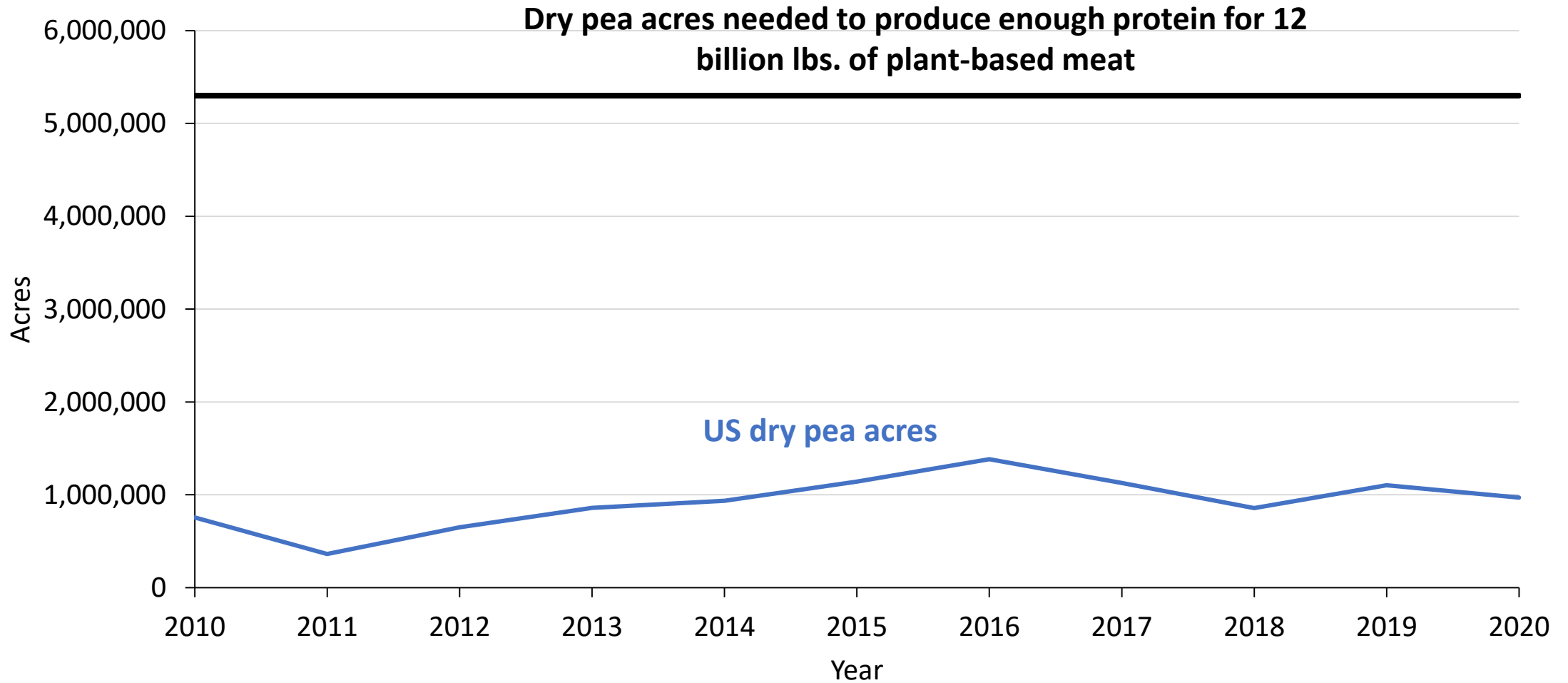
Why Meat Matters

- **2019 Total U.S. Farm Receipts = \$374 billion**
 - **\$177 billion of animal products (47%)**
 - **\$59 billion of feed grains (15.8%)**
 - 43% of domestic corn use goes directly to animals
 - Another 20% indirectly reaches animals via distillers grains
 - **\$35 billion soybeans (9.4%)**
 - About 85% soybean meal goes to animals

US Soybean Acres



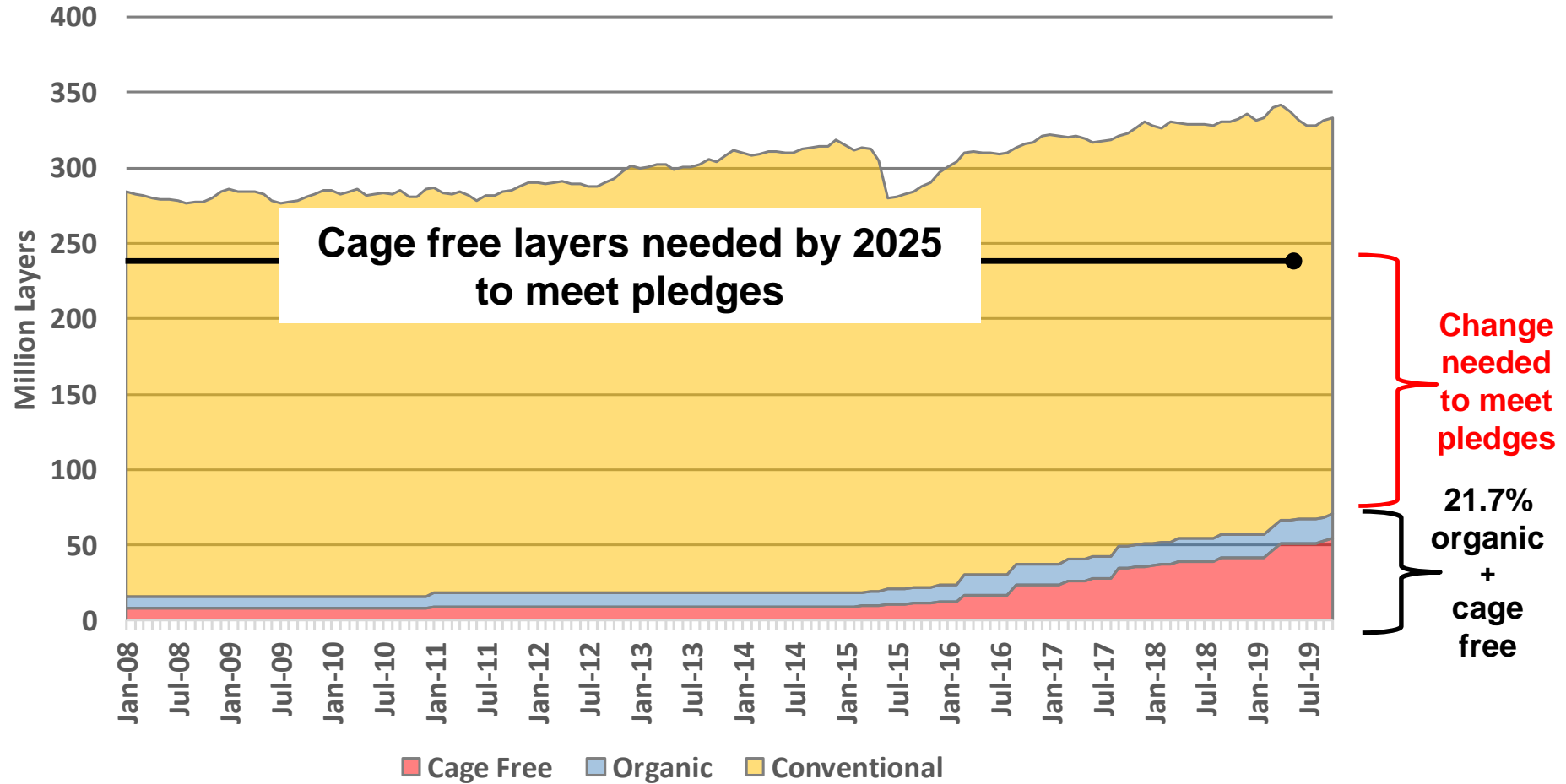
US Dry Pea Acres



Who decides?



Walmart U.S. Announces Transition to Cage-Free Egg Supply Chain by 2025



Source: USDA-AMS & Egg Industry Center

Food System Re-alignments

- New “outside” investors and startups



Food System Re-alignments

- Acquisitions by incumbents or new entrants



Food System Re-alignments

- Mergers of input suppliers



CHEMCHINA

syngenta®

Food System Re-alignments

- **Backward and forward integration**



Walmart Enters The Beef Business With Packing Facility In Georgia

Greg Henderson

January 10, 2020 02:07 PM

Food Business News

Perdue Farms launches direct-to-consumer platform

01.07.2020 By Sam Danley

THE WALL STREET JOURNAL.

Tyson, Grappling With Covid-19, Promotes Former Tech Executive to CEO

By [Jacob Bunge](#)

Updated Aug. 3, 2020 1:33 pm ET



Costco Builds Nebraska Supply Chain For Its \$5 Rotisserie Chickens

October 22, 2018 · 4:31 PM ET

Drivers

- **Pressure from investors to meet sustainability initiatives**
- **Attempt to control supply and quality of inputs**
- **Perception of agriculture as “analog”**
- **Falling returns from traditional core businesses**
 - Lack of internal innovation
- **Attempts to acquire informational advantages**
 - digital agriculture
 - blockchain
- **Be more responsive to consumer demands**

What's ahead?

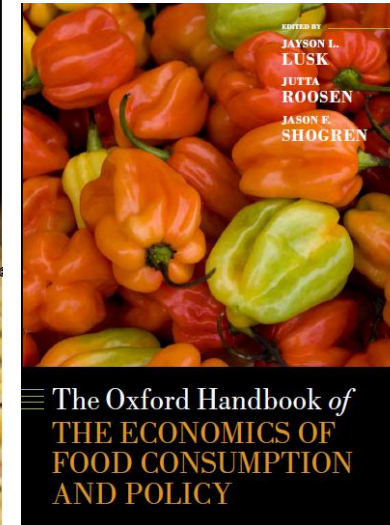
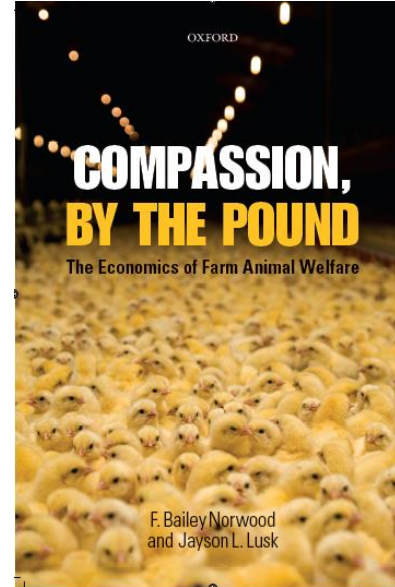
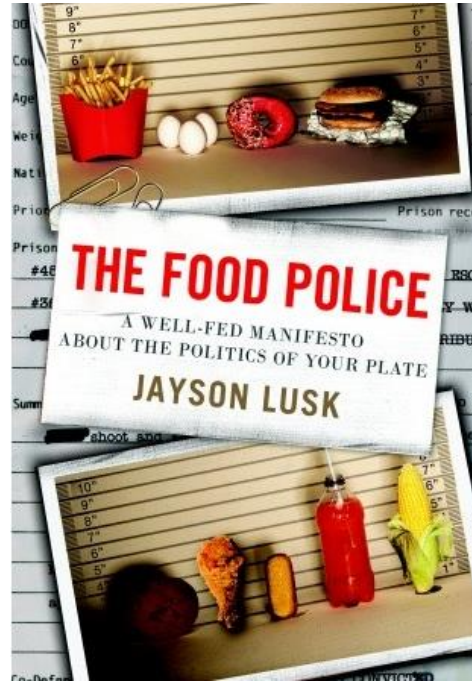
- Stabilization in retail price inflation
- Accelerated trend to e-grocery
- More food at home will by-pass the store (micro-fulfillment centers)
- Labor saving automation
- Smaller groceries focused on fresh items
- Increased scrutiny over concentration and anti-competitive behavior
- Shake-up in food service sector
- More ghost kitchens
- Rising interest among some segments in local, direct farm delivery

HOW SCIENCE AND TECHNOLOGY
ARE SERVING UP SUPER FOODS
TO SAVE THE WORLD



Unnaturally Delicious

JAYSON LUSK



Contact:

jayson.lusk@gmail.com

765-494-1903

www.jaysonlusk.com

@JaysonLusk