

# Beyond Compliance

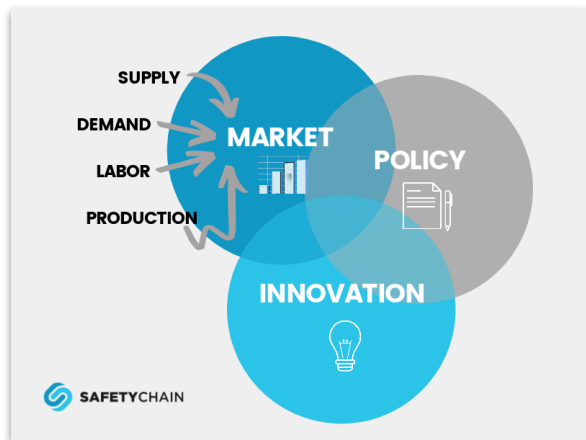
## Webinar & Podcast Series

Title: **The Economic Impact of COVID-19 on U.S. Food Manufacturers**

Presented By: **Laurian Unnevehr, Ph.D., and Dawn Thilmany, Ph.D.**



# The Series



## BEYOND COMPLIANCE

Webinar & Podcast Series



**Aaron Bolshaw**  
VP Marketing



## Plant Management Platform



Suppliers

REDUCE  
RISK



Receiving

LOAD  
ACCURACY



Pre-Op

INCREASE  
PRODUCTIVITY



Processing

IMPROVE  
YIELD



OEE/SPC

IMPROVE  
THROUGHPUT



Shipping

REDUCE  
HOLDS



Audit

ENSURE  
COMPLIANCE



# Before We Get Started

## HELPFUL TIPS

- ✓ Informal but professional format
- ✓ Ask Questions (Q&A at end)
- ✓ Only panelists are displayed
- ✓ Recording link will be shared
- ✓ Audio issues - stay patient, we'll work to get people in

COME BACK AND WATCH THE REPLAY!



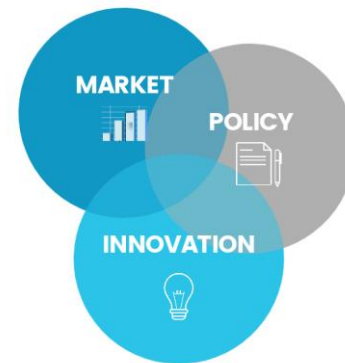
# Presenters

- **Prof. Laurian Unnevehr**, Professor Emerita, Agricultural and Consumer Economics, University of Illinois at Urbana-Champaign
- **Prof. Dawn Thilmany**, Associate Director, Community and Economic Development and a Professor in the Dept. of Agriculture and Resource Economics at Colorado State University



# Outline

- Markets
  - A first look at changes to where, how, and what consumers are buying and how products are being delivered
- Policies
  - How will economic stimulus and an expanded safety net address the challenges the food sector is facing?
- Innovation
  - Will emerging innovations to address the ‘new normal’ be an opportunity to shape a more resilient and nimble food system?



# Markets: Overall Economic Impact

- U.S. population under shelter-in-place: 265M in 32 states
- Stock market decline over past month: 35%
- Unemployment claims at record high: >500% of previous recession records
- Projected negative growth for 2020 GDP: -3.8% (Goldman Sachs)
  
- Perspectives on size:
  - U.S. economy (GDP) is approx \$21 trillion
  - Coronavirus Relief package is \$2.2 trillion
  - Food sector is \$1.7 trillion

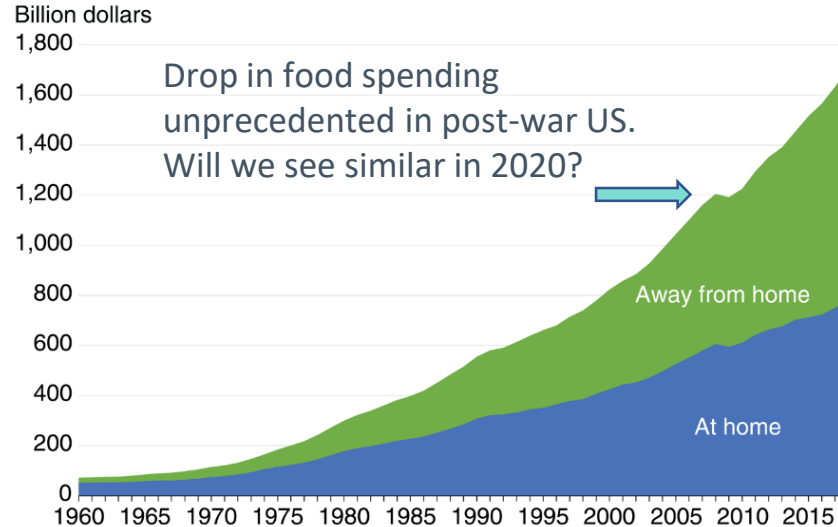
# Markets: Demand Changes

- **Overview:** US food system undergoing an extremely rapid shift from food away from home (FAFH) to food at home (FAH) purchases.
- **Lessons from Great Recession**
  - Drop in total food expenditures (5% in real terms)
  - Shift to food at home (FAH) and less food away from home (FAFH)
  - Rise in food insecurity
- **What's Different Now**
  - Hoarding psychology and demand for storables
  - Rise of delivery culture and "On-Demand" platforms for FAFH and FAH
  - Category "collapse" as less demand for specialty items; focus on core brands, products



# FAH vs. FAFH

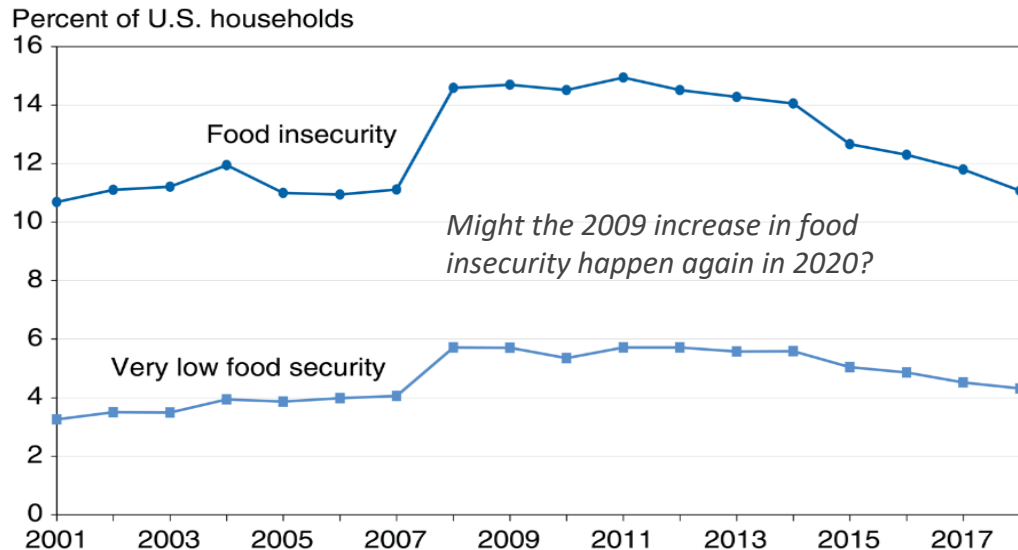
**Food-at-home and away-from-home expenditures in the United States, 1960-2018**



Source: USDA, Economic Research Service, Food Expenditure Series.

# Food Insecurity

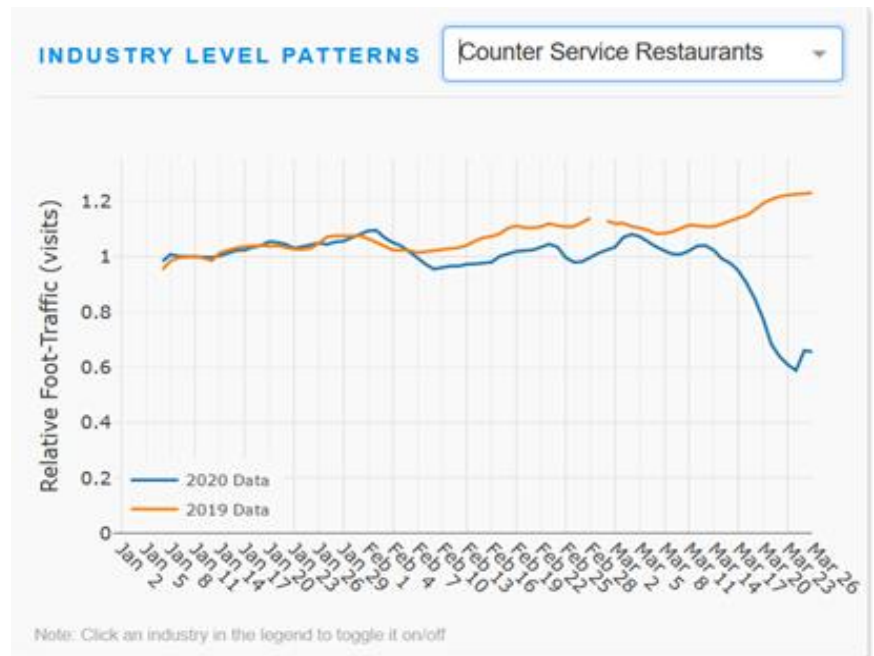
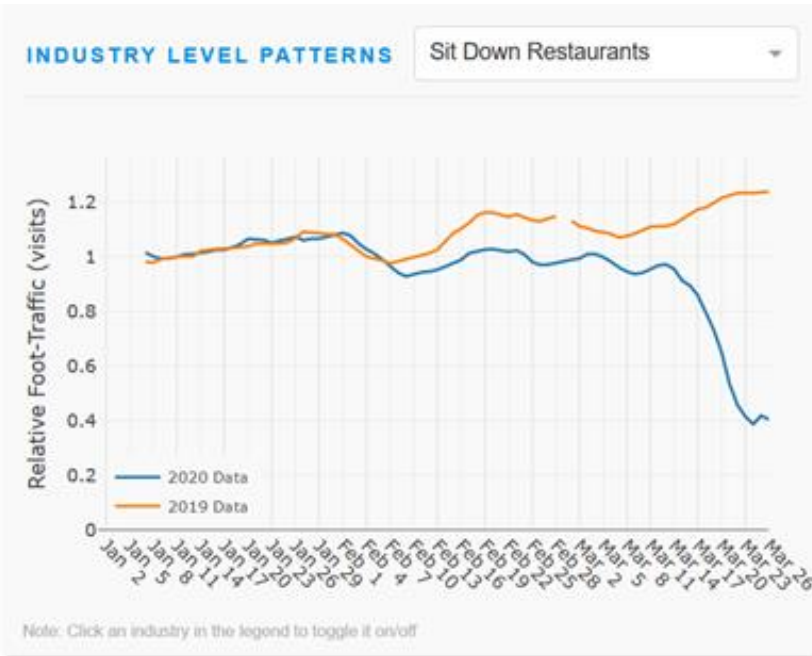
Prevalence of food insecurity and very low food security, 2001-2018



Note: Food insecurity includes low and very low food security.

Source: USDA, Economic Research Service using data from Current Population Survey Food Security Supplements, U.S. Census Bureau.

# Changing Traffic Patterns Across Food System

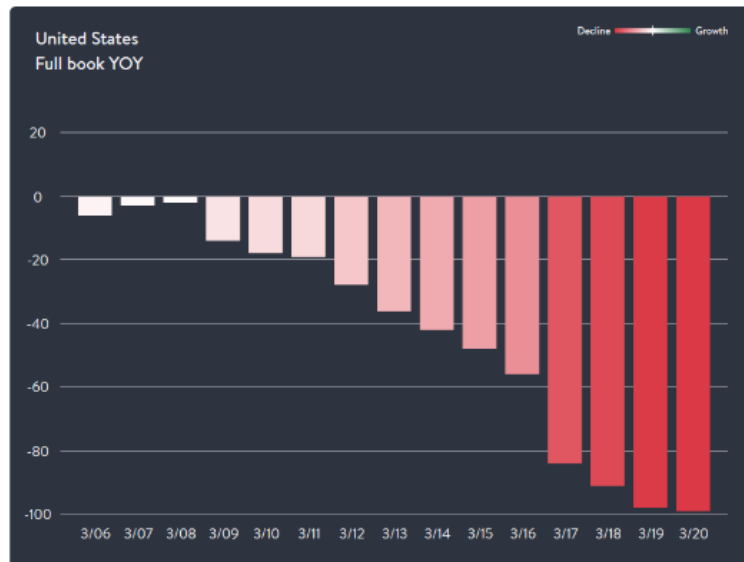
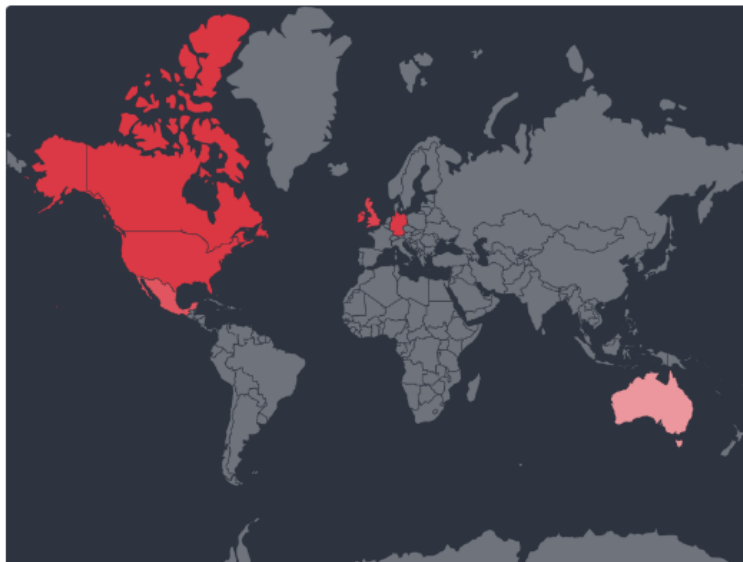


- <https://www.safegraph.com/dashboard/covid19-commerce-patterns>

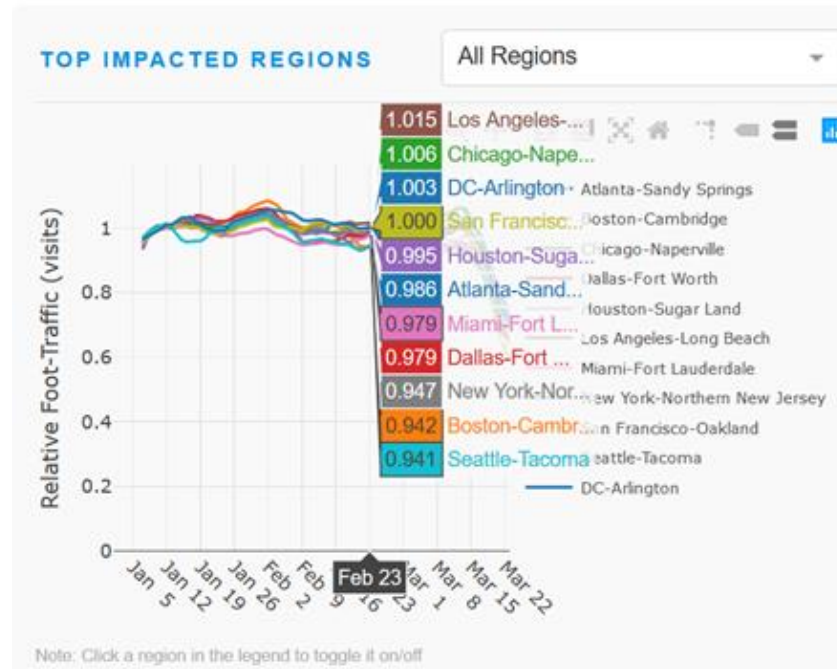
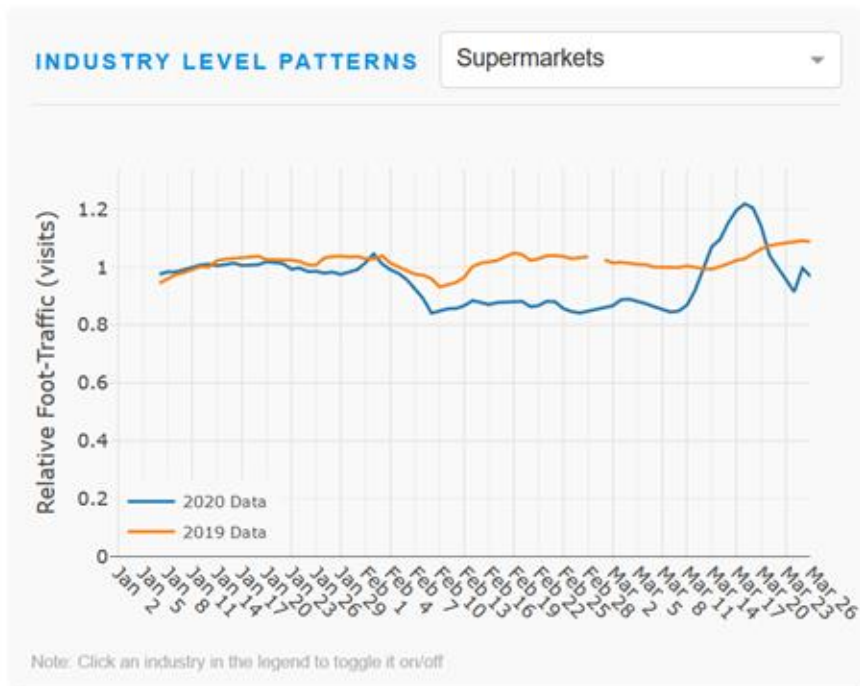
# Restaurant Attendance

Year-over-year seated diners at restaurants on the OpenTable network across all channels: online reservations, phone reservations, and walk-ins. For year-over-year comparisons by day, we compared the same day of the week from the same week in the previous year. Only states or cities with 50+ restaurants in the sample are included.

United States ▾

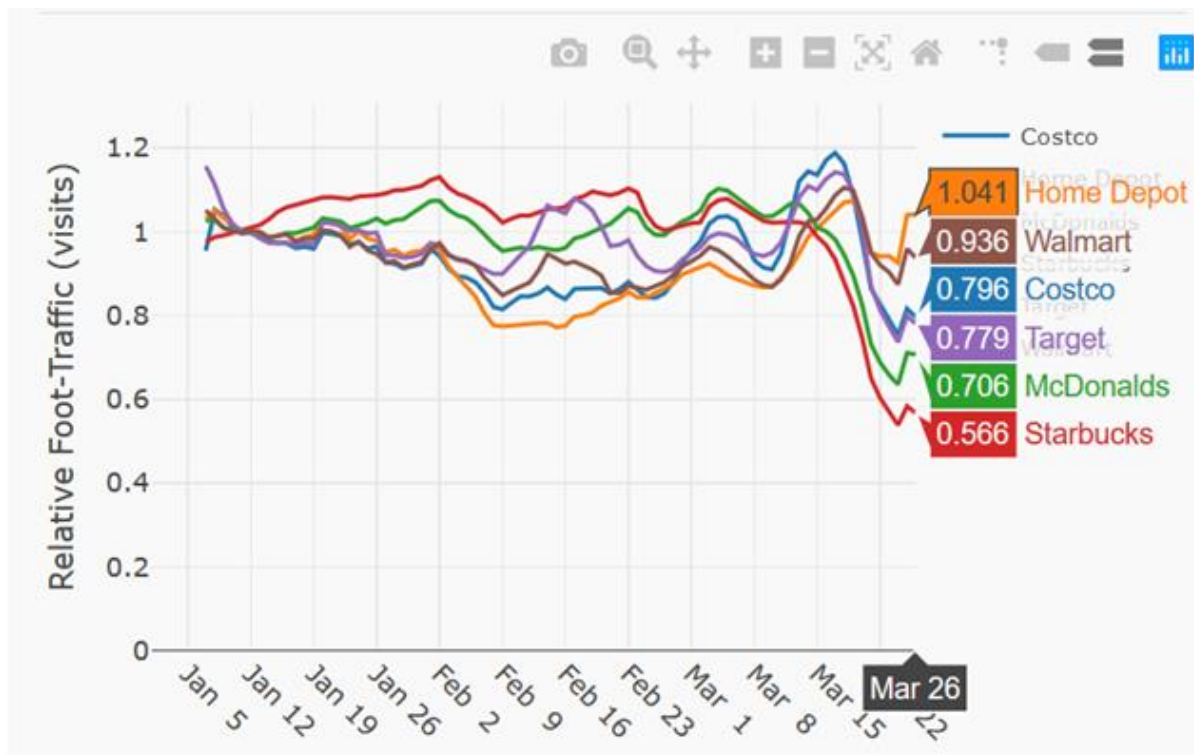


# Will Supermarkets and General Merchandise Stores Be Affected?



<https://www.safegraph.com/dashboard/covid19-commerce-patterns>

# Walmart & Target Similar to Supermarkets & Other Notable Trends



# Markets: Supply Chain Risks

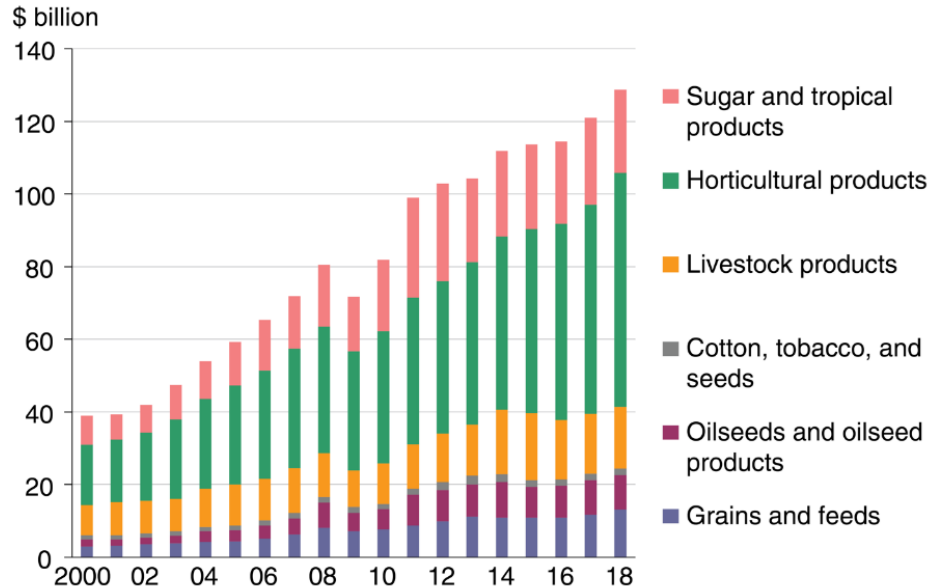


- What is the flexibility of food manufacturers and others in supply chain to respond to changing purchase patterns?
- Disruptions in International Sourcing
  - Imports account for 13% of U.S. food supply and are particularly important for fruits and vegetables
  - Packaging shortages of key ingredients with competing demands
- Labor availability
  - Disruptions due to quarantines of sick employees
  - H2A program for farmers: interview reqt waived for 2020
  - Need for spacing out employees may slow harvesting, processing
- Logistics
  - Example: containers stranded in China w/shutdown of exports; needed to ship food out of Canada
  - Efforts to reduce waste in recent years mean shorter pipeline that has rapidly emptied
  - Truckers face challenges with truck stop, services closed along their routes

# Historical US Agricultural Imports

Imports especially  
important for fruits  
and vegetables

U.S. agricultural imports, 2000-18

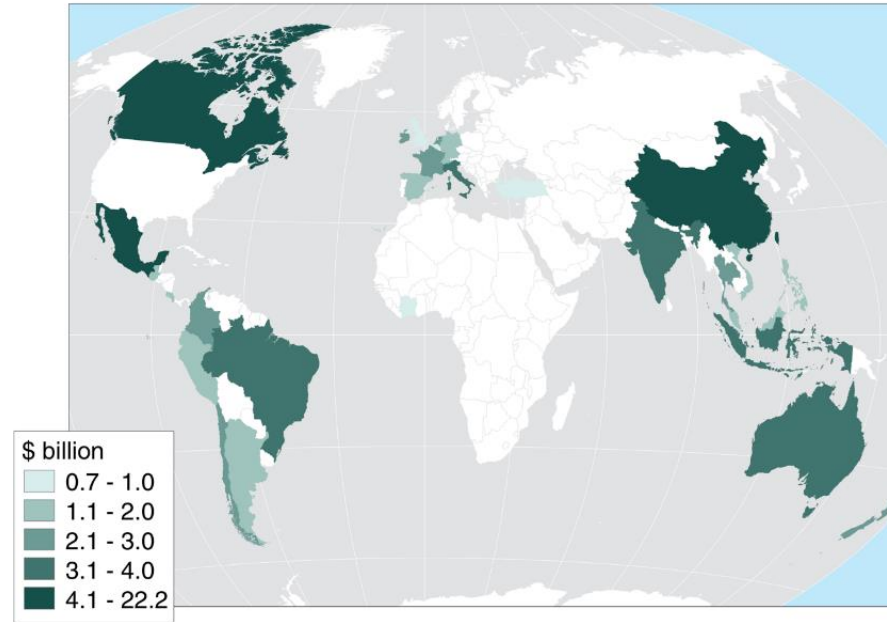


Source: USDA, Economic Research Service using data from U.S. Department of Commerce, U.S. Census Bureau, Foreign Trade Database.



# Recent Top Agricultural Import Sources

Top 30 U.S. agricultural import sources, 2013-15 average



Trade within North America is especially important for food supply

Of the \$130B U.S. food imports in 2019, \$23B from Canada & \$28B from Mexico

Source: USDA, Economic Research Service calculations based on data from U.S. Department of Commerce, U.S. Census Bureau, Foreign Trade Database.

# China's Exports Drop, EU Declines as Well

## **CHINA LEADS EXPORT DROP, EU ALSO IN DECLINE**



Chart segments change in U.S. seaborne imports by origin between China, Asia ex-China and the EU.

[https://mma.prnewswire.com/media/1135719/S\\_P\\_Global\\_Market\\_Intelligence.html](https://mma.prnewswire.com/media/1135719/S_P_Global_Market_Intelligence.html)

# Regional Employment Impacts

## Least Affected

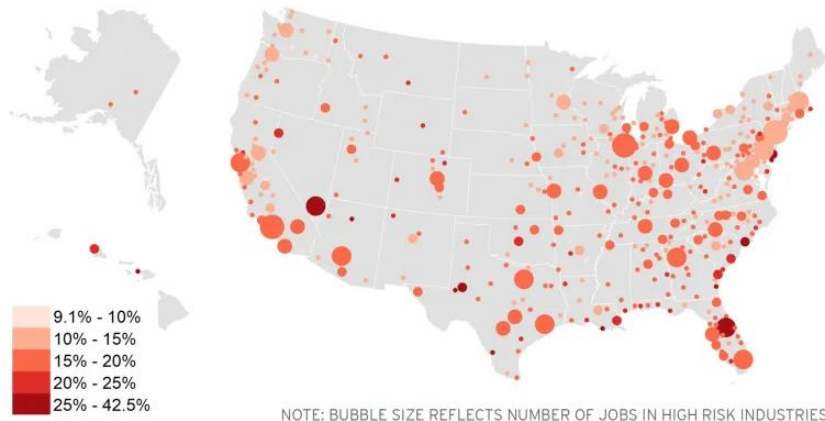
Metro areas positioned to be least affected by COVID-19 are a diverse group e.g. Agriculture communities like Madera, Calif. and Yakima, Wash. (where less than 10% of their workforce are in affected industries).

<https://www.brookings.edu/blog/the-avenue/2020/03/17/the-places-a-covid-19-recession-will-likely-hit-hardest/>

## Most Affected

**Sunbelt tourist destinations and energy metros stand to be most affected**

Share of metro employment in high risk industries, 2019

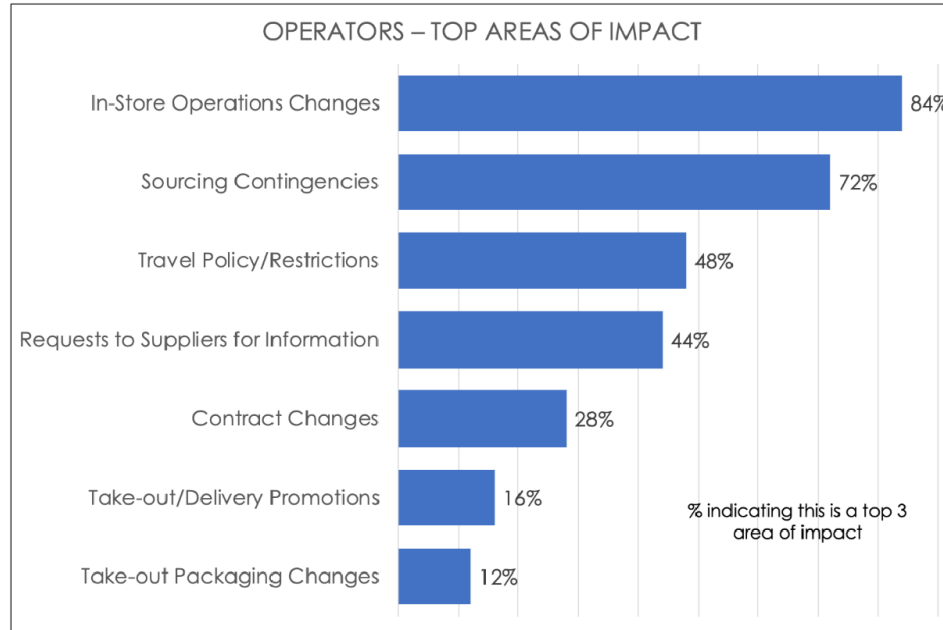


Source: Zandi, "COVID-19: A Fiscal Stimulus Plan," (Moody's Analytics, 2020) and Brookings analysis of Emsi data



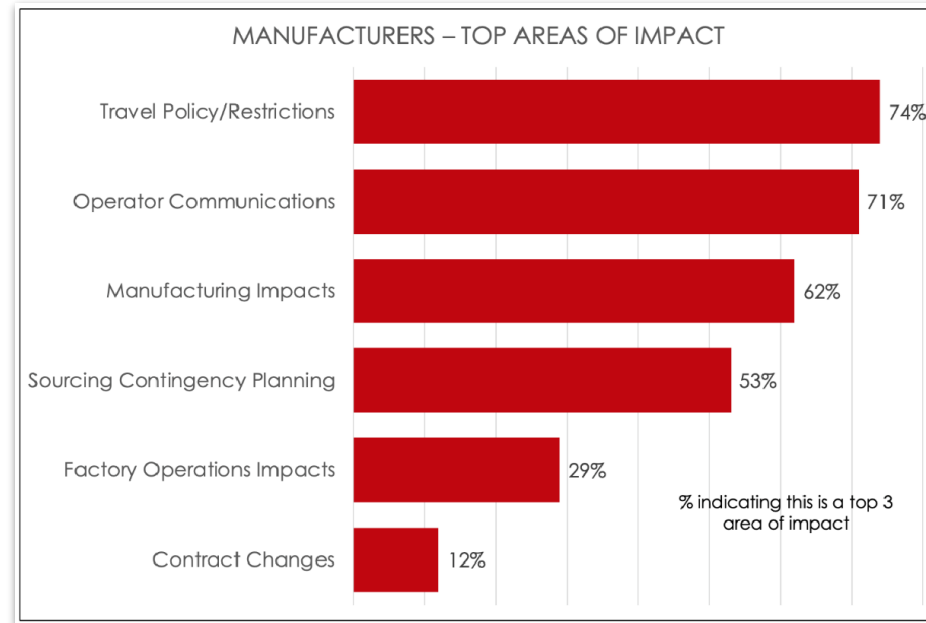
Metropolitan Policy Program  
at BROOKINGS

# Restaurant Operators Have Unfortunately Been Hard-Hit



*CORONAVIRUS IMPACT ON THE FOODSERVICE INDUSTRY: Pulse Survey of Operators, Manufacturers and Consumers*  
March 17, 2020; Published by IFMA in conjunction with Kinetic12 Consult

# The Story from Manufacturers



# Policies: Federal

- Agriculture and Food declared an essential industry so continues to operate even where shelter-in-place in effect

Update on the Coronavirus Relief Package (CARES Act) enacted 3/27/20

- \$550M in direct payments to households and increased UI will shore up demand
- What will farm and food manufacturing assistance look like and how will it vary by subsector?
  - Food Assistance Programs
  - Small Business
  - Farms

# Policies: Food Assistance in the CARES Act

- Total \$25B for food assistance
- \$15.5B additional SNAP funding (~20% increase) and \$8.8B for Child Nutrition programs, just to meet expected expansion in participation. No increase in benefit levels.
- \$350M for Emergency Food Assistance; \$100M for Native American reservations; \$200M for Puerto Rico and other territories.
- Suspends proposed rule on work requirements for SNAP.
- Some state level flexibility to increase benefits as an “emergency allotment”
- A recent USDA/ERS analysis finds that \$1 billion in new SNAP benefits would lead to an increase of \$1.54 billion in Gross Domestic Product (GDP).



# Policies: Food Assistance Delivery

- School programs: Free and reduced-price meals continue with curbside or off-site pick up
  - New rule to allow pick up without child present
  - States can issue these benefits in EBT form
  - New partnerships to deliver to rural children
- New flexibility in rules for Child and Adult Day Care Feed Program
- The USDA is experimenting with SNAP online ordering in Alabama, Iowa, New York, Oregon and Washington, working with Amazon and Walmart. California proposed implementing online SNAP purchasing and expand to include Safeway.



# Policies: Federal Aid to Small Business in CARES Act

- Additional funding (\$14B) to USDA keep meat plant inspectors and plant/animal disease quarantine officers available
- \$349B in loans to companies with < 500 employees (PPLG)
  - will be forgiven if workers kept on payroll and used for salary, rent, insurance
  - provision to allow franchisees to benefit especially useful in restaurant sector
- Tax Code fix for restaurant industry to allow immediate depreciation for property renovations

# Policies: Federal Aid to Farms in the CARES Act



- Total \$23.5B to USDA for support to farmers
- \$14B in expanded funding for CCC to replenish trade relief program
  - Flexibility in apply for loans or deferring repayment
- \$9.5B in specific funds for livestock and horticultural producers

# Policies: State and Local

- Declaration of Ag and Food as essential workers
  - Freeing up supply and making more labor available
  - Perhaps affording these workers access to more/better benefits, eg., child care in MN and VT
  - Work-share programs to retain workforce, allow UI benefits
- Support for vulnerable restaurant sector
  - Tax holidays
  - Support switch to delivery or pick up as common channel
  - Flexibility of liquor laws

# INNOVATION: Food Supply Chain Adapts to Meet Demand

- **Manufacturers running 24/7 & limiting production runs to key stock units**
  - Typically about 26 days of food supply in the system at any given time.
- **Meat Processors active, but likely the most vulnerable to worker shortages/disruptions**
  - Margins for U.S. beef processors hit a record high (\$580 per head) March 23, up from about \$170 the previous week, but April live futures fell about 7% as traders worried COVID could shut slaughterhouses.
  - Margins climbed with wholesale jump of 20% in early March.

<https://www.meatpoultry.com/articles/22806-redeployment-of-food-distribution-resources-underway/> ; <https://www.reuters.com/article/us-health-coronavirus-usa-meatpacking/as-coronavirus-fuels-meat-demand-processors-raise-pay-for-north-american-farmers-workers-idUSKBN21A3Z9>

# INNOVATION: Food Supply Chain Adapts to Meet Demand

- Food retail sales jump 20% - 100% amid demand surge with fresh categories, including meat, lagging. Barclays: performance similar to holiday season.
- Shift product lines from FAFH to FAH
  - FDA relaxed labeling requirements to move items into grocery
  - Taylor Farms example of shift in packaging, processing towards grocery
- Retailers continue to hire employees, but many engaged on a temporary basis.
  - Analysts warned that if other countries are indicative, sales will slow significantly when consumers have completed building their stockpiles.
  - “Sales in China and Italy have started to decline,” they said.

<https://www.meatpoultry.com/articles/22806-redeployment-of-food-distribution-resources-underway/>

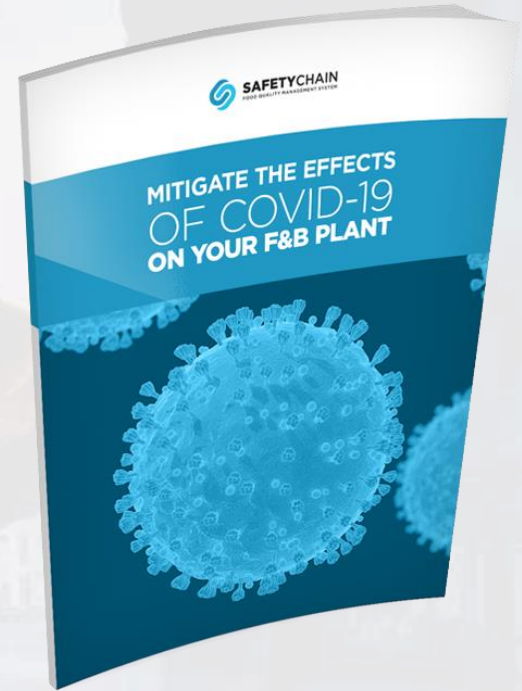


# INNOVATION: Delivery and Online

- Restaurants partnering with breweries/wineries/ distilleries: joint delivery
- Touch-free delivery protocols in shelter-in-place cities
- Amazon and grocery delivery volumes up, but shifting to “essential” products
  - Small and midsize food manufacturers and farms see consumers moving to online platforms at unprecedented rates, but are challenged to navigate bit platforms such as Amazon....new food platforms popping up online
  - Exacerbating disparity in broadband access and further strain on delivery sector
    - <https://www.barn2door.com>
    - <https://www.harvie.farm>

# INNOVATION: Managing Through COVID-19

- SafetyChain Stories
  - Mobile devices allow operations from remote areas
  - Assessing supply chain risks (supplier compliance)
  - Conducting remote audits
  - Using communication/collaboration tools to help operators



# Final Thoughts

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- Unprecedented changes occurring in the economy and the food sector
- Demand for food always remains relatively robust in economic downturns
- Major shifts within food sector unique to this event
- More changes ahead, but food sector is proving both flexible and resilient



# For More Information

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The University of Illinois' Department of Agricultural and Consumer Economics influences national and international policymaking on issues ranging from how producers, consumers, and agribusinesses manage risk and adapt to climate change to the impacts of new technologies, environmental regulations, and federal laws on profitability and human well-being.



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CSU's College of Agricultural Sciences strives to improve the social well-being of people by solving the economic, managerial, educational, and policy-related problems within our agri-food and resource systems. Its researchers work with industry and government partners like the USDA and NASA, and focus on the safety, security, and sustainability of food systems.





Q & A

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# Resources



**White Papers & Guides**



**Webinars & Videos**



**Product & Partner Info**



**Solution Consultation**



**SAFETYCHAIN**  
FOOD QUALITY MANAGEMENT SYSTEM

# **Appendix**

## Additional Information & Resources

# INNOVATION: Grocers on the “Front Line” of Labor Shortage

- Sick leave could fix a significant public health issue ....
  - A 2014 UC Berkeley Labor Research Center Report, 65% of grocery workers in California had gone to work sick and 60 percent they’d done so for three days or longer
- Walmart will pay U.S. hourly workers a special cash bonus
  - Part of a \$550 million package in support of their extra efforts to serve spikes in demand
- Target invests > \$300 million in wage increase, bonus payments, paid leave, and employee relief fund for “significant contributions its frontline team members are playing during an incredible time of need.”
  - Raising hourly workers’ pay by \$2 an hour until at least May 2
  - For first time, it will pay bonuses (\$250 to \$1500) to 20K hourly store department team leads
- Stop & Shop gave ~70,000 of its workers a 10 percent raise and paid sick leave

<https://www.supermarketnews.com/retail-financial/walmart-invests-550m-target-300m-employees-coronavirus-front-lines>  
<https://the1a.org/segments/coronavirus-feeding-a-sick-nation/>

# Nielsen Update on Consumer Spending

## FOOD (DRIED/SHELF)

	WEEK ENDING MARCH 14	WEEK ENDING MARCH 21
PRODUCT		
Baking Yeast	+253.8%	+647.3%
Dried beans	+230.5%	+377%
Tuna	+142.3%	+245.6%
Total Beans	+133.5%	+237.2%
Soup	+126.6%	+237.1%
Rice	+166.1%	+234.1%
Pasta	+136.3%	+227.8%
Black beans	+150.4%	+224%
Chickpeas/garbanzos	+156.8%	+213.2%
Baking Powder	+66.2%	+193%
Cereal	+64.2%	+93.7%
Bread	+35.3%	+69.7%

## PRODUCT

	WEEK ENDING MARCH 14	WEEK ENDING MARCH 21
Popcorn	+47.7%	+81.3%
Pretzels	+46.7%	+70.8%
Potato chips	+29.6%	+60.7%
Ice cream	+23.1%	+50.2%
Chocolate	+19%	+21.3%

## FOOD (FRUITS/VEGETABLES)

PRODUCT	WEEK ENDING MARCH 14	WEEK ENDING MARCH 21
Oranges	+38.1%	+57.3%
Apples	+19.8%	+40.9%
Celery	+2.7%	+26.6%
Bananas	+16.6%	+26.5%

<https://www.npr.org/2020/03/27/822650816/guess-whats-flying-off-shelves-now-hair-dye>

# Nielsen Update on Consumer Spending

FOOD (MEAT/ALTERNATIVES)			PRODUCT		
	WEEK ENDING MARCH 14	WEEK ENDING MARCH 21		WEEK ENDING MARCH 14	WEEK ENDING MARCH 21
PRODUCT	+97.4%	+622.1%	Oat milk	+476.7%	+513.1%
Spiral hams	+279.8%	+454.1%	Powdered milk products	+245%	+285.9%
Plant-based meat alternatives (fresh)	+187.8%	+282%	Butter	+56.3%	+127.1%
Canned meat	+139.4%	+233.4%	Dairy/milk alternatives	+56.5%	+85.7%
Canned seafood	+84.6%	+128.6%	Cheese	+45.5%	+84.3%
Plant-based meat alternatives (fully cooked)	+57.7%	+127.2%	Milk	+32.4%	+52.6%
Meat (processed)	+48.2%	+100%	Yogurt	+29%	+33.8%
Meat (fresh)	+44%	+85.7%	BEVERAGES		
Chicken eggs	+51.8%	+83%	PRODUCT	WEEK ENDING MARCH 14	WEEK ENDING MARCH 21
Chicken (fresh)	+42%	+73.6%	Sports drinks	+70%	+81.2%
Meat (fully cooked)	+35%	+59.2%	Water	+99.4%	+78.5%
Chicken (fully cooked)			Packaged coffee	+42.4%	+73.3%
			Orange juice	+40.4%	+73.2%

<https://www.npr.org/2020/03/27/822650816/guess-whats-flying-off-shelves-now-hair-dye>



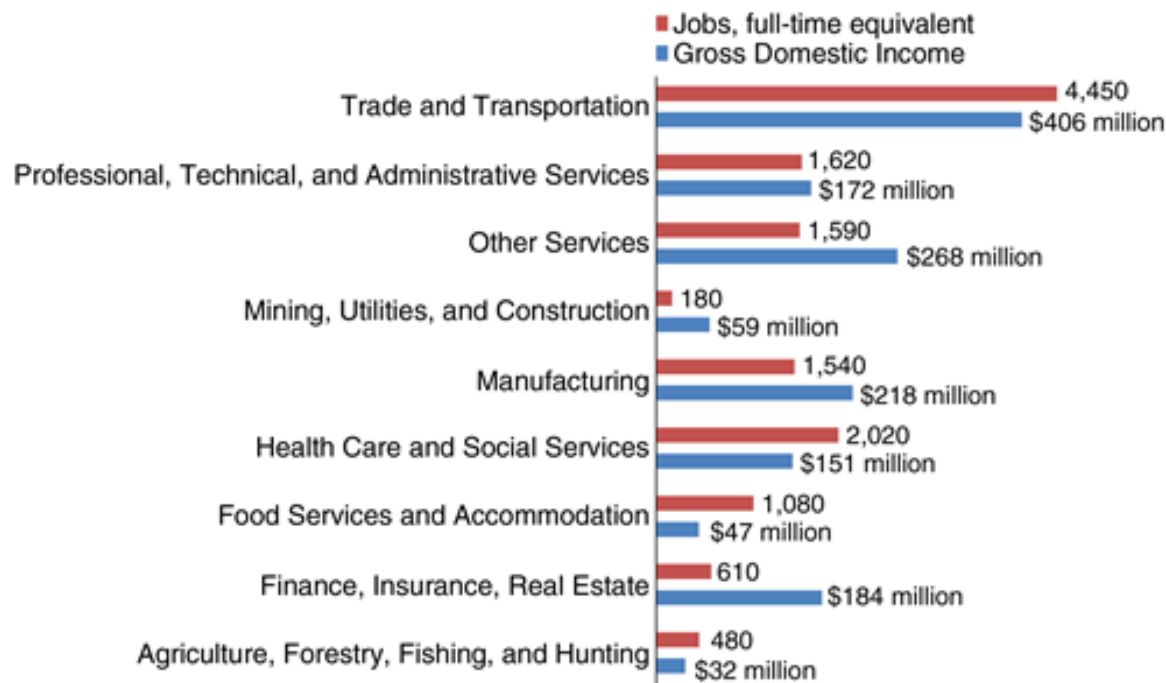
The Great Recession  
led to less FAFH and  
healthier eating

Total daily calories and calories from FAFH declined among working-age adults between 2005-06 and 2009-10			
Daily intake	2005-06 (average per day)	2009-10* (average per day)	Percent change from 2005-06 to 2009-10
Total calories (number)	2,328	2,250	-3.4
Calories from fat (percent)	33.8	32.7	-3.3
Calories from saturated fat (percent)	11.3	10.6	-5.9
Cholesterol (number of milligrams)	308	284	-7.9
Fiber (number of grams)	16.1	17.3	7.5
FAFH meals (number)	0.87	0.77	-11.5
FAFH snacks (number)	0.41	0.36	-12.2
Calories from FAFH (number)	833	706	-15.2
Calories from FAFH (percent)	34.7	30.0	-13.7
Calories from fast food (number)	351	298	-15.2
Calories from fast food (percent)	14.4	12.6	-12.7
<p>*Estimated after accounting for changes in age and other demographic characteristics between 2005-06 and 2009-10 in the cohort of adults born between 1946 and 1985. All changes are statistically significant with <math>p &lt; 0.05</math>.</p> <p>Note: FAFH = Food away from home.</p> <p>Source: USDA, Economic Research Service using data from the 2005-06 and 2009-10 National Health and Nutrition Examination Survey.</p>			



## The impact of new SNAP benefits varies by major industry group

Change in annual employment and Gross Domestic Income  
per \$1 billion in new SNAP benefits, 2016



Across the economy,  
approximately \$1.54 billion in GDI  
and approximately 13,560 jobs  
would be supported by the  
\$1 billion new SNAP expenditure.

For the trade and transportation industries,  
new income totaling \$406 million and  
4,450 jobs would be generated.  
These industries include grocery stores,  
food and other wholesalers,  
plus the trucking and rail freight industries,  
among others.

## Coronavirus Aid, Relief, and Economic Security (CARES) Act

- On March 25, 2020, the U.S. Senate passed CARES
  - \$2 trillion economic stimulus package, the Act provides an estimated \$260 billion in enhanced and expanded unemployment insurance (UI)
- **Pandemic Unemployment Compensation (PUC)**
- Through July 31, 2020, all regular UI and Pandemic Unemployment Assistance claimants will receive their usual calculated benefit plus an additional \$600 per week in compensation.
- **Pandemic Emergency Unemployment Compensation (PEUC)**
- The CARES Act also provides an additional 13 weeks of state UI benefits, which will become available after someone exhausts all their regular state UI benefits. All but eight states offer 26 weeks of UI benefits.[\[1\]](#)

# Pandemic Unemployment Assistance (PUA)

- Importantly, this program will provide income support to many workers who are shut out of the state UI systems in this country. In fact, workers who are eligible for state UI are not eligible for the PUA program.
  - Those eligible for PUA include self-employed workers, including independent contractors, freelancers, workers seeking part-time work, and workers who do not have a long-enough work history to qualify for state UI benefits.
- Applicants will need to provide self-certification that they are (1) partially or fully unemployed, OR (2) unable and unavailable to work because of one of the following circumstances:
  - They have been diagnosed with COVID-19 or have symptoms of it and are seeking diagnosis;
  - A household member diagnosed with COVID-19 or they are providing care for someone diagnosed with COVID-19 including a child or other household member who can't attend school or work because it is closed due to COVID-19;
  - They are quarantined or have been advised by a health care provider to self-quarantine;
  - They were scheduled to start employment and do not have a job or cannot reach their place of employment as a result of a COVID-19 outbreak;
  - They have become the breadwinner for a household because the head of household has died as a direct result of COVID-19;
  - They had to quit their job as a direct result of COVID-19 or Their place of employment is closed as a direct result of COVID-19

# Spending in Context of Unemployment Insurance

TABLE 2—SPENDING CHANGE AT UI EXHAUSTION

Spending Type <sup>a</sup>	Category <sup>b</sup>	Pre-onset \$ (1)	Pre-exhaustion \$ (2)	Post-exhaustion \$ (3)	Change (3) – (2) \$ (4)	Change (4)/(2) % (5)
Durable	Home improvement	48.7	46.5	37.2	–9.4	–20.2
Other ND	Discount stores	57.7	58.1	47.1	–11.0	–18.9
Other ND	Department stores	19.4	16.5	13.6	–2.9	–17.7
Durable	Miscellaneous durables	27.1	26.3	21.8	–4.5	–17.1
Other ND	Other retail	148.8	137.8	114.4	–22.8	–16.5
Strict ND	Food away from home	193.4	164.3	138.2	–26.1	–15.9
Strict ND	Groceries	302.3	293.7	247.4	–46.3	–15.8
Other ND	Drug stores	39.3	35.4	30.6	–5.4	–13.3
Durable	Retail durables	48.3	43.3	36.7	–6.6	–15.3
Nondurable	Cash	703.7	584.1	495.9	–88.2	–15.1
Other ND	Medical copay	35.4	29.3	25.3	–4.0	–13.6
Durable	Entertainment	29.4	27.0	23.4	–3.6	–13.4
Durable	Auto repair	40.4	36.3	31.6	–4.7	–12.9
Other ND	Online	42.6	38.8	34.1	–4.7	–12.1
Strict ND	Transportation	155.6	127.6	114.0	–13.6	–10.6
Durable	Hotels & rental cars	27.0	21.4	19.2	–2.2	–10.3
Strict ND	Professional & personal services	55.4	50.0	45.0	–5.0	–10.0
Strict ND	Telecom	111.6	106.6	97.4	–9.2	–8.7
Strict ND	Utilities	190.1	182.4	173.3	–9.2	–5.0
Strict ND	Flights	32.5	24.5	23.5	–0.9	–3.9
Nondurable	Miscellaneous nondurables	308.6	276.6	268.5	–8.1	–2.9
Durable	Insurance	151.6	159.0	154.6	–4.4	–2.8

**Consumer Spending during Unemployment:**  
**Positive and Normative Implications†** By Peter Ganong and Pascal Noel\*

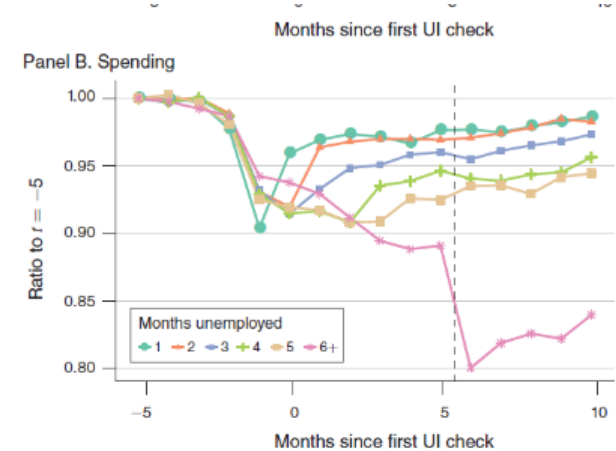


FIGURE 1. EVENT STUDY BY UI DURATION  
 American Economic Review 2019, 109(7): 2383–2424  
<https://doi.org/10.1257/aer.20170537>

## Good news for the Restaurant sector switch To take out and delivery



### COVID-19 AND FOOD SAFETY FAQ IS CORONAVIRUS A CONCERN WITH TAKEOUT?

CDC, FDA and USDA are not aware of any reports at this time that suggest COVID-19 can be transmitted by food or food packaging. Current evidence shows the biggest risk of transmission of COVID-19 is being around individuals who are symptomatic (and to a lesser extent, infected but not showing symptoms.) Food businesses should be following employee health policies and health department recommendations to keep these individuals home.

#### WHAT ARE THE RISKS OF TAKEOUT OR DRIVE-THRU FOOD?

- There is no current indication that takeout or drive-thru meals will increase illness.
- This option is a good risk management choice, especially for high risk and elderly groups because it helps maintain social distancing and reduces the number of touch points.

#### WHAT ARE THE RISKS OF FOOD DELIVERED TO HOME?

- Similar to takeout, food delivery helps maintain social distancing and reduces the number of touch points between preparation and serving of food.
- Many delivery programs have also instituted no touch/no interaction options, which further reduces risk.

#### CAN I GET COVID-19 FROM TOUCHING FOOD OR PACKAGING EXPOSED TO CORONAVIRUS?

- The risk of transfer of viruses is very low, based on current research.
- To further minimize risk, handling food packaging should be followed by handwashing and/or using hand sanitizer.

#### WHAT HAPPENS IN YOUR BODY IF YOU DO INGEST CORONAVIRUS THROUGH FOOD?

- Coronaviruses are generally thought to be spread from person-to-person through respiratory droplets. It may be possible for a person to get COVID-19 by touching a contaminated surface or object and then touching their mouth, eyes, or nose, but this is not thought to be the major way the virus is transmitted.
- Currently, there is no evidence to support transmission of the virus directly by eating food that might inadvertently contain virus.
- In commercial food production, processing, and preparation, there are many best practices that are routinely followed as per federal, state, and local regulations. These are all designed to prevent foods from becoming contaminated with microbes from the environment, including viruses.
- The best thing a consumer can do is to continue using good food safety practices before preparing or eating food, like always washing your hands with soap and water for 20 seconds after using the restroom, and after blowing your nose, coughing, or sneezing.

NC STATE

EXTENSION

Stay informed: [go.ncsu.edu/covid-19](https://go.ncsu.edu/covid-19)

Updated March 23, 2020



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# The benefits and costs of flattening the curve for COVID-19

**Table 2.** Projected outcomes under alternative economic recovery assumptions for uncontrolled (without social distancing) and controlled (with social distancing) scenarios.

	Slow controlled and uncontrolled recovery	Fast controlled and uncontrolled recovery	Fast controlled, slow uncontrolled recovery	Slow controlled, fast uncontrolled recovery
Avoided deaths [million]	1.22	1.22	1.22	1.22
Value of avoided deaths [trillion US\$]	12.2	12.2	12.2	12.2
Present value of GDP loss [trillion US\$]	-6.84	-1.95	14.4	-23.2
Net benefits [trillion US\$]	5.35	10.2	26.6	-11.0

Parameter values:  $R_0 = 2.4$ , infectious period = 6.5 days, low mortality rate = 0.5%, high mortality rate = 1.5%, reduction in contact rate = 38%, VSL = \$10 million, uncontrolled GDP shock = -2.0%, controlled GDP shock = -3.8%, slow recovery time = 60 months, fast recovery time = 15 months.

Linda Thunström<sup>1\*</sup>, Stephen C. Newbold<sup>1\*</sup>, David Finnoff<sup>1</sup>, Madison Ashworth<sup>1</sup>, Jason F. Shogren<sup>1</sup>  
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Social distancing saves lives but imposes large costs on society due to reduced economic activity. We use an SIR model to perform a benefit-cost analysis of controlling the COVID-19 outbreak.

Assuming that social distancing measures can substantially reduce contacts among individuals, we find net benefits of roughly \$5 trillion in our benchmark scenario. We examine the magnitude of the critical parameters that would lead to negative net benefits.



# Small Business Loans under CARES

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Existing EDIL loan program now qualifies for COVID relief

Paycheck Protection Loan Guarantee under CARES Act

- Loans up to 2.5x average payroll costs for firms with < 500 employees

- 4% interest and payment deferred 6 to 12 months

- Loans forgiven if maintain same # employees as early 2020 or mid 2019; and funds used to cover payroll costs for employees with salary < \$100K, rent and utilities, health insurance premiums

Demand likely to greatly exceed normal SBA processing capacity so expect delays