Economic Impacts of COVID-19 on Food and Agricultural Markets

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Purdue University

Alison Davis
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John D. Anderson
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Program Moderator
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Executive Vice President
CAST

NATIONAL C-FAR

AAEA
Agricultural & Applied Economics Association

CAST
National Coalition for Food and Agricultural Research (NCFAR)

Non-profit, nonpartisan, consensus-based and customer led coalition that brings food, agriculture, nutrition, conservation, and natural resource stakeholders together with the food and agriculture research and extension community serving as a forum and a unified voice in support of sustaining and increasing public investment at the national level in food and agricultural research, extension and education.
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- **Agriculture Research Service (ARS)** – USDA’s principal in-house research agency.

- **Economic Research Service (ERS)** – USDA’s principal social science research agency.

- **National Agriculture Statistics Service (NASS)** - serves the basic agricultural and rural data needs of the country by providing objective, important and accurate statistical information and services to farmers, ranchers, agribusinesses and public officials.

- **National Institute of Food and Agriculture (NIFA)** – In partnership with land-grant universities and other public and private organizations, NIFA provides the focus to advance a global system of extramural research, extension and higher education in the food and agricultural sciences.
Since 1972, the Council for Agricultural Science and Technology (CAST) has provided balanced, credible, science-based information about food and agriculture to policymakers, the media, the private sector, and the public.

Kent Schescke
Executive Vice President
2020
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A world where decision making related to agriculture and natural resources is based on credible information developed through reason, science, and consensus building.

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CAST, through its network of experts, assembles, interprets, and communicates credible, balanced, science-based information through free open-access online resources; print materials; videos; Spanish, Mandarin, French, and Vietnamese translations; Friday Notes; social media; and the Borlaug CAST Communication Award.
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- **Nearly 200 active task force members** working on CAST reports yet to be released
- Volunteer scientific experts as authors and reviewers—more than **800 volunteers** since 2007

65% academia
15% government
15% companies
5% nonprofits

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- The public
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Economic Impacts of COVID-19 on Food and Agricultural Markets
CAST Commentary QTA2020-3

June 29, 2020
Q&A: Please post your questions for the panel in the chat box.

Economic Impacts of COVID-19 on Food and Agricultural Markets

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#CASTreports2020

## Economic Impacts of COVID-19 on Food and Agricultural Markets

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COVID-19 and the Food Supply Chain

Jayson L. Lusk
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Department of Agricultural Economics
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Timeline of disruptive events

Early March
Start of “stocking up” for food at home

Mid to Late March
Two big demand shocks near destruction of demand for food away from home (FAFH) and spike in grocery demand

Early to Mid April
A return to normalcy in grocery and the calm before the storm

Late April to Mid May
Large negative supply shocks to beef and pork packing

June to Present
Recovery in meat packing
Return of FAFH
Shocks as seen through wholesale prices

Source: Lusk calculations based on USDA data
Foot Traffic

Supermarkets

Sit Down Restaurants

Industry Level Patterns

Source: Safegraph https://www.safegraph.com/dashboard/covid19-commerce-patterns
Vulnerabilities

https://ag.purdue.edu/stories/the-road-from-farm-to-table/
Meat packing is concentrated

• 10 plants slaughter **63%** of all cattle
• 15 plants slaughter **59%** of all hogs
Processing Volumes

% Change in Animals Processed in 2020 vs. 2019

Cattle
Hogs
Chickens
Topics of Interest Covered in Report

• Consumer psychology around stocking-up
• Changing consumer food attitudes due to COVID-19
• Resiliency of current food systems
  • Option value of redundancy, excess capacity, and asset flexibility
• Making markets
• Automation and online sales
• Price dynamics driving farm and retail prices
• Food policy and regulation
• Macro-economic impacts and trade
• Food buying patterns in recessions
  • Food insecurity
COVID-19 Impact on Fruit and Vegetable Industry

Dr. Timothy J. Richards
Marvin and June Morrison Chair of Agribusiness
Morrison School of Agribusiness
W. P. Carey School of Business
Arizona State University
Three Themes

• **Supply Chain Resilience**
  - Loss of foodservice channel
  - Shifts in consumption, shipments, pricing
  - Model of supply-chain resilience (or lack thereof)
  - What can we do?

• **Shift to Online Retail**
  - Document move to online food shopping
  - What can we expect to see happen?
  - Be careful what you wish for

• **Primacy of Labor in the Supply Chain**
  - Importance of labor in fruit and vegetable supply
  - What is happening with the H-2A Temporary Agricultural Worker Program?
  - What should happen with H-2A? Farm Workforce Modernization Act (FWMA)
Foodservice and Retail
Foodservice vs Retail

- **Expenditure equal in U.S.**
  - 51% Food away from home
  - 49% Food at home
  - But, we don’t really know prices for FAFH

- **Stay-at-home orders crush foodservice**

- **What happened to foodservice volume?**
  - Moved to retail
  - Wasted
  - Moved to food banks
  - Purchased by government (Farmers to Families Food Boxes)

- **How much volume are we talking about?**
  - Prices for FAFH roughly double, so 33% volume
Retail Visits
(Source: SafeGraph, Inc.)
Figure 4. Potato Shipments: Retail (CO) vs Foodservice (ID)

Source: AMS-USDA Market News Service
Why are Supply Chains not Resilient?

• **Fresh foods not fungible between retail / foodservice**
  - Packs
  - Contracts
  - Transportation / logistics / distribution systems

• **Food system resilience**
  - Food system is very efficient / focused / concentrated
  - Efficiency and resilience are tradeoffs
  - Example of fixed costs / uncertainty / hysteresis

• **How can we improve resilience?**
  - Policy would sacrifice efficiency / create distortions
  - Flexibility is flipside of hysteresis (Trigeorgis and Reuer 2017)
Online Shopping
Change in Online Shopping

Figure 5. Change on Online CPG Purchases (%)

Source: Nielsen and Rakuten LLC.

Year over year, April 11
Year over year, April 18

<table>
<thead>
<tr>
<th>Category</th>
<th>April 11</th>
<th>April 18</th>
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<tbody>
<tr>
<td>Total Online</td>
<td>59.1</td>
<td>56</td>
</tr>
<tr>
<td>Food</td>
<td>103.5</td>
<td>69.5</td>
</tr>
<tr>
<td>Baby Care</td>
<td>38.2</td>
<td>27.2</td>
</tr>
<tr>
<td>Pet Care</td>
<td>32.8</td>
<td>22.3</td>
</tr>
<tr>
<td>Health and Beauty</td>
<td>32.5</td>
<td>57.5</td>
</tr>
<tr>
<td>Household Care</td>
<td>58.9</td>
<td>57.5</td>
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Implications of Online

• Search costs are lower
  - Physical, cognitive, transport, delivery
  - Brynjolffson, Hu, and Simester (2011)

• Five primary implications:
  1. Consumers purchase larger baskets
  2. Consumers search more intensively
  3. Consumers less likely to purchase on impulse
  4. Demand for complementary infrastructure investments
  5. Retail “long tail” effect follow from inventory investments
Online Search

• **What are implications of intensive online search?**
  - Perfect competition requires zero search costs
  - Conventional wisdom: Search reduces equilibrium prices
  - Commoditize retail markets for perishable items

• **Is this really the case?**
  - Consumers have specific attribute demands
  - Lower search costs increase the intensity of search
  - Search intensity improves probability of match
  - Lower search costs can increase equilibrium prices

• **Empirical test**
  - Richards, Hamilton, and Empen (2017 *AJAE*)
  - comScore Web Behavior Panel data. Awesome.
Importance of Labor
Average share of production costs comprised by labor (including harvest labor) for selected produce crops

Source: Enterprise budgets used by USDA, Economic Research Service in the Regional Environment and Agriculture Programming (REAP) model, originally documented by Johansson et al. (2007), as updated in 2018. Only enterprise budgets with a separate cost category for labor were included, and the average labor share of total costs is included. Budgets differ in how they allocate costs across categories. Costs presented are average total costs per activity, measured at the operation level.
H-2A Temporary Agricultural Worker Program

• Work permit for foreign workers:
  - Max 10 months
  - Limited to crop farmers
  - Growth sign of labor shortage
  - Bureaucratic nightmare
  - Specialized law firms help

• Current data:
  - 2019: 24,267 in May
  - 2020: 24,702

Source: https://www.ers.usda.gov/topics/farm-economy/farm-labor/
Farm Workforce Modernization Act

- Objective is to streamline and modernize H-2A
- Strongly supported by most of the industry

History:
- Introduced to U.S. House on November 12, 2019
- Passed by House on December 11, 2019
- Referred to Senate Judiciary Committee December 12, 2019

Features
- Creates Certified Agricultural Worker (CAW) status
- Need 1,035 hours in prior 2 years
- CAW apply for greencard after 10 years
- Electronic platform for H-2A application
- Changes AEWR (Adverse Effect Wage Rate) to reflect local, industry differences
- H-2A available for year-round agricultural work
Conclusions

• Supply chain resilience
  - Likely to see market response to lack of resilience
  - Long run will not sacrifice efficiency
  - Move to distributed supply chain (online farmers’ markets)

• Online shopping
  - Accelerated online shopping by 10 years
  - The “long tail” of retail food
  - Margin expansion, not contraction

• Importance of labor in fruit and vegetables
  - Heavy reliance on immigrant labor
  - Mechanization is limited solution
  - Farm Workforce Modernization Act is key step
COVID-19 and Rural Health Care

Alison F. Davis
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171 rural hospitals have closed since 2005

Source: Thomas SR, Pink GH, Reiter KL. Geographic Variation in the 2019 Risk of Financial Distress among Rural Hospitals. NC Rural Health Research Program, Sheps Center for Health Services Research, University of North Carolina at Chapel Hill. April 2019. FB 152
Hospital traffic compared to 2019

- Down 33-50%
- Down 50% or more

APRIL

266 hospitals furloughing workers in response to COVID-19


Telehealth in Rural America
Disruptive Innovation for the Long Term?

• Rural Americans face significant barriers that limit their access to health care, including proximity, lack of transportation, and provider shortages.

• The use of telehealth has grown in recent years, and rural health stakeholders have long seen telehealth as a potential solution for improving health care access in rural communities.

• Billing: In response to COVID-19, most Medicaid programs expanded access to telehealth for beneficiaries through emergency policies.

• BUT...
Texas EMS agencies struggling financially due to COVID-19 crisis

By Dawn Burleigh
Email the author
Published 2:28 pm Tuesday, April 28, 2020

A survey of 80 Texas emergency medical services (EMS) agencies reported that 91% are suffering significant financial losses due to the COVID-19 pandemic. The survey, conducted by the Texas EMS Alliance and Texas Ambulance Association, surveyed EMS agencies that provide both 911 service and non-emergency transports.

EMS agency worries financial impact of COVID19 could impact response when virus peaks

Calls are down and crews are out sick, which means less money coming in but, extra money going out because of added payroll expenses.

Hospitals’ Covid-19 Surge Puts EMS Providers in Financial Squeeze

In coronavirus pandemic, ambulances have been treating patients in their homes without pay, leading to steep revenue shortfalls.
Rural Hospitals Worry $10 Billion Infusion from CARES Act Just a ‘Band-Aid’

As financial aid for hospitals begins to be deployed across the country, some of the rural administrators worry it’s only a temporary fix, not a long term solution.
COVID-19 and Commodity Markets

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Row Crop Impacts

• Major negative demand shock coinciding with a surge in supply as producers anticipated strong export growth, particularly to China

• Reduced demand affects all food/feed grains, oilseeds, and fiber
  • Reduced energy prices due to demand shock compounded negative demand effects for both corn and cotton

• Prices likely to remain under pressure for entire 2020/21 marketing year, contingent on
  • Pace of global economic recovery
  • Weather-related production shortfalls in major crop producing area(s)
Livestock & Poultry

• Initial Effects on Demand
  • Food at-home vs. away-from-home

• Later Effects on Supply Chain
  • Constraints on livestock/poultry harvest
  • Product availability
  • Farm-to-wholesale price spreads
Forestry and Wood Products Market Impacts

• Pulp wood demand surged due to paper demand
  • Toilet paper, paper towels, hygiene products, paper/boxes for shipping
  • Large supply has muted price response at farm level

• Longer term, paper demand likely to suffer from shift to more at-home work with electronic communication
  • Acceleration of a long-term trend

• Sharp downturn in saw timber market due to economic slowdown
  • 30% to 60% work reductions for logging crews across the Southeast
  • Recovery will depend on the performance of the housing market
Agricultural Finance

• $20 billion loss in farm income expected due to COVID (FAPRI)
  • $16 billion in support available through CFAP for losses on inventory value or on sales in the first few months of 2020

• Farm profitability will be stressed in 2020 due to COVID effects

• Overall, the strength of the sector should be sufficient for it to weather the first wave of COVID effects without major disruption
  • May see some increase in cost of financing, but financial position of lenders suggests that credit will remain available

• Significant effects from subsequent COVID wave(s) could change the financial picture significantly
Research Priorities

• Supply chain analysis to improve prediction related to external shocks
  • Resilience in the meat processing sector
  • More nimble logistical arrangements in food supply chain
  • Local/regional food systems

• Worker protections and more robust ag labor supply

• More responsive food assistance programs (e.g. SNAP)

• Technology adoption and regulation

• Relationships between environmental degradation and disease emergence

• Maintaining international trade amid pandemic
Outreach Priorities

• Policy analysis – alternatives and consequences
  • Short-term: crisis mitigation/relief
  • Long-term: supply chain structure and regulation

• Farm financial management, financial stress mitigation

• Supply chain resilience
  • Local food systems, ag labor recruiting/retention, alternative enterprise evaluation, etc.

• Community resilience
  • Rural healthcare, rural infrastructure, education, local government support
Upcoming Events

**July 2020**

**August 2020**

**September 2020**
*The Importance of Communicating Empirically Based Science for Society.* Commentary. Chair: Stuart Smyth, Associate Professor, College of Agriculture and Bioresources, University of Saskatchewan.
Next NCFAR Seminar
Noon Monday, July 13

CRISPR
Gene Editing Applications
in Food & Agriculture

National Coalition for Food and Agricultural Research
Q&A: Please post your questions for the panel in the chat box.

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Thank you all for joining us today!

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