# Consolidation and Animal Welfare in US Meat Production

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# Motivation

- US meat production is very concentrated
  - 45% of all cows killed at just 11 plants (USDA 2026)
  - 3 firms process $>$50% of chickens
- Consolidation raises concerns beyond price
  - Concern over humane treatment of animals in all stages of life
- Today: Consolidation & animal welfare at slaughterhouse


Press Release

Undercover Investigation Documents Tysons' Cruel, Illegal Treatment of Chickens

Animal Legal Defense Fund uncovers multiple health and safety violations in Texas plant

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September 14, 2015

# Is Consolidation Good or Bad for Animal Welfare?

Relationships between consolidation and animal welfare is theoretically ambiguous

- Pros
  - Monopoly Power $\Rightarrow$ Lower supply
  - Scale $\Rightarrow$ Easier to implement standards, more staff
- Cons
  - Regulatory Capture $\Rightarrow$ Easier to avoid responsibility
  - "Cutting Edge" Technologies $\Rightarrow$ High-speed lines can be cruel
- Highly Consolidated $\Rightarrow$ Does facility ownership matter?
  - Many policies set by *parent company*

# Today's Talk

- New Descriptive Evidence
  - Geography and patterns of consolidation in slaughterhouses
  - Prevalence of animal welfare violations at slaughterhouses
- Correlation between consolidation and animal welfare outcomes
  - Link slaughterhouses to animal welfare violations
  - Animal welfare rates after acquisitions
- Consumer awareness of meat quality and welfare violations
  - Link grocery retailers and restaurants
  - Does meat labeled as high quality (free range, etc..) come from low-violation slaughterhouses?

# Data

# Step 1: Slaughterhouse Data

- Federal Meat Inspection Act requires all U.S. meat to be inspected by FSIS
- Inspectors monitor compliance with humane handling, labeling, sanitation laws
- We FOIA inspection data to build a panel of slaughterhouses from 2006–2024

# Step 2: Animal Welfare Data

- Universe of **animal welfare violations** at U.S. meat facilities (2011–2024)
  - Non-compliance with sanitation, slaughter, handling, or welfare regulations
  - Recorded by on-site FSIS inspector
  - Egregious or repeat violators may face enforcement actions
- Universe of **enforcement actions** (2015–2024)
  - FSIS can issue warnings, suspend facilities, or revoke inspection rights
  - Enforcements are more serious regulatory intervention

# Examples of Violations

***Improper slaughter:*** *"I observed one live bird whose throat had not been cut about to enter scalder number one. The bird had open, blinking eyes and was lifting its head in an attempt to right itself."*

***Humane handling:*** *"The farmer was observed pulling the first animal (a large ram) by his ears through the alleyway and into pen." — St. Croix Abattoir, March 2021*

***Insufficient water:*** *"Inspector observed veal located in the smaller ramp section usually designated for dead calves. Two of the three veal in the area were still alive. The area had no water available for the animals." – Gold Medal Packing Inc., Feb 2021*

# Step 3: Grocery store Locations and Consumer Purchase Data

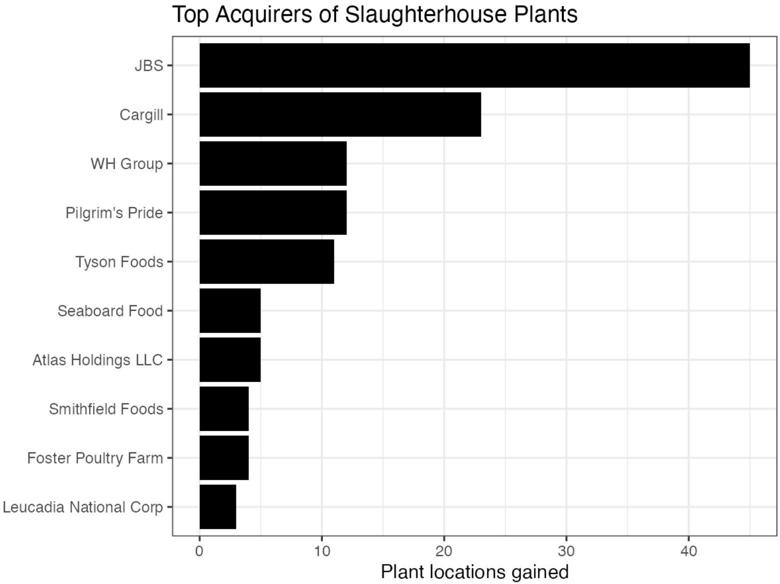
- **SNAP Authorized retailers:** locations, entrance, and exit into SNAP (opening/closing dates)
- **Nielsen Consumer Panel** 2004-2023, tracks a panel of 40,000-60,000 households and their purchases
- Link households information (zip, demographics) with meat purchases (product, brand, size, price, quantity) and anonymized retailers
- Link purchases to slaughterhouses

# Ownership and consolidation in meat industry

# Final Slaughterhouse Sample

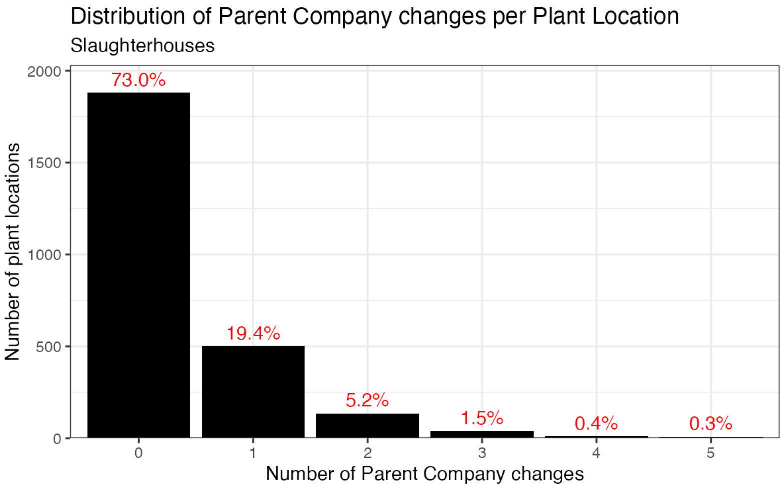
| Largest companies | Facility # | % of total |
|---|---|---|
| Top 1 (Tyson) | 62 | 2.8 |
| Top 4 | 163 | 7.4 |
| Top 6 | 180 | 8.2 |
| Top 10 | 189 | 8.6 |
| Top 15 | 213 | 9.7 |
| Top 20 | 227 | 10.4 |
| **All companies** | **2,191** | **100.0** |

# Largest Slaughterhouses are the Top Acquirers

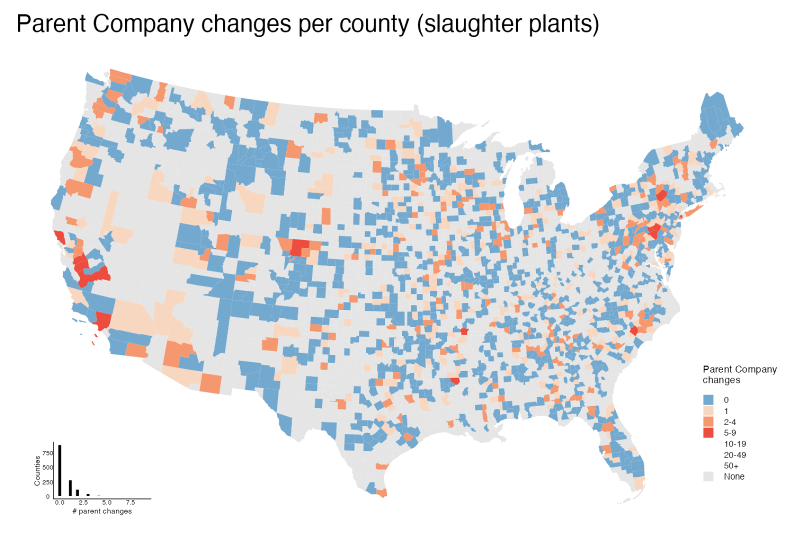


# Plant Acquisitions

## 70% of Acquired Plants are Only Acquired Once



# Map of Plant Acquisitions



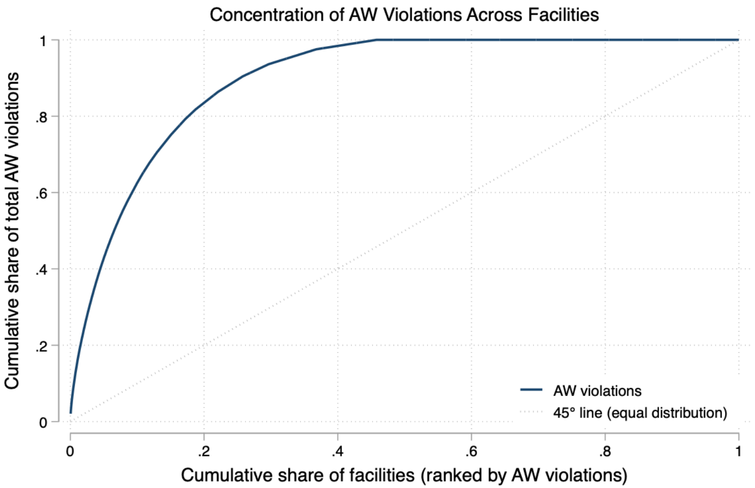
# Animal welfare

# Final animal welfare sample

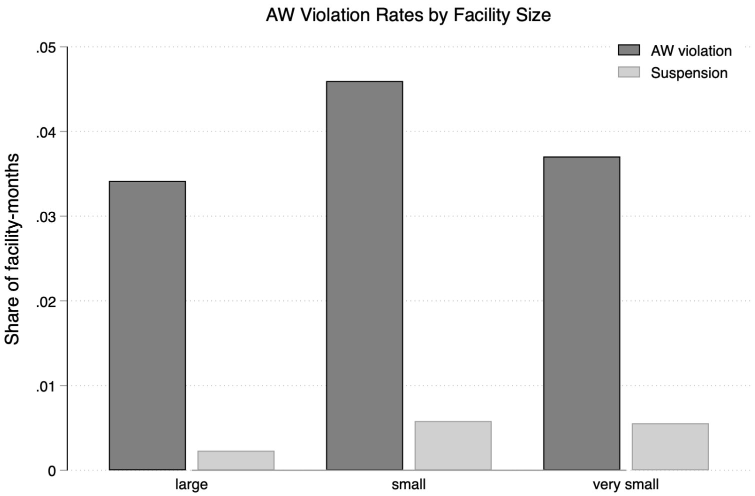
## Should we be concerned about animal welfare at slaughterhouses?

| **Variable** | **Total** |
|---|---|
| Total facilities in violation sample (2011-2024) | 2,191 |
| Total facilities in enforcement sample (2015-2024) | 2,095 |
| Share facilities w any AW violation | 50.1% |
| Share facilities w any enforcement | 28.1% |

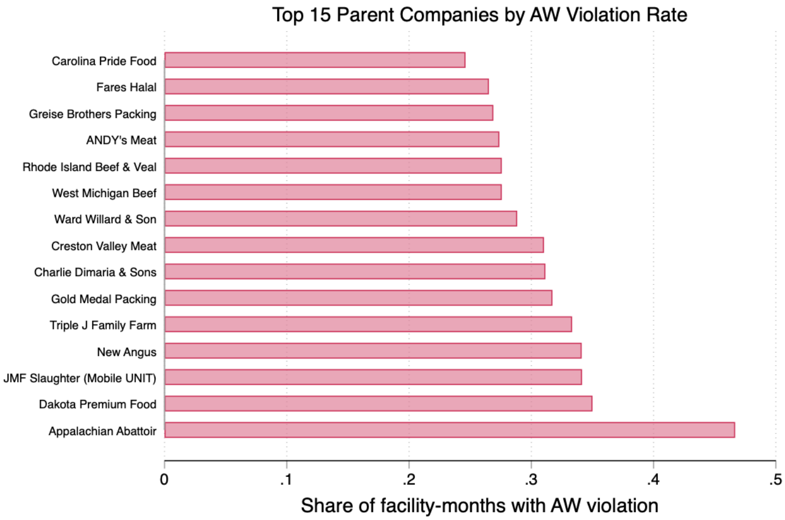
# Violations are concentrated among a few facilities



# Small slaughterhouses have a higher rate of AW violations



# Highest violation rates are among small facilities

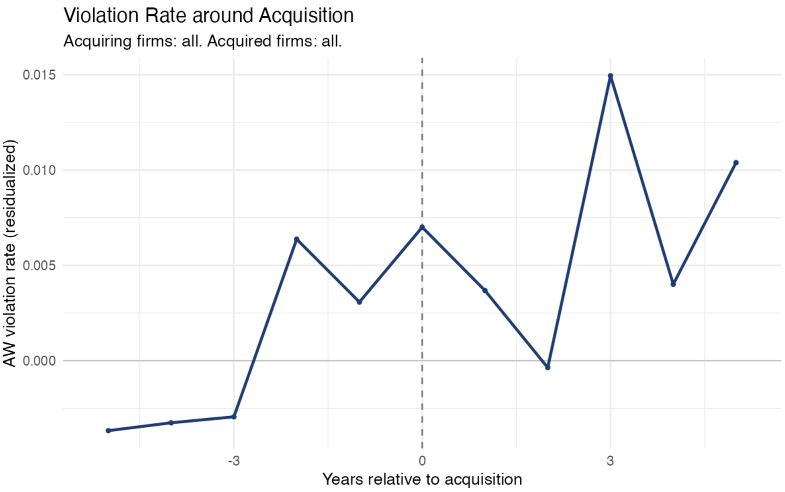


# Violations among the top 5 largest companies

| Parent Company | Facility # | AW Violation Rate (%) | Enforc. Rate (%) |
|---|---|---|---|
| Tyson Foods | 76 | 2.88 | 0.24 |
| JBS | 63 | 5.44 | 1.05 |
| Cargill | 32 | 5.80 | 1.32 |
| Perdue Farms | 20 | 0.65 | 0.07 |
| Sanderson Farms | 17 | 1.45 | 0.10 |

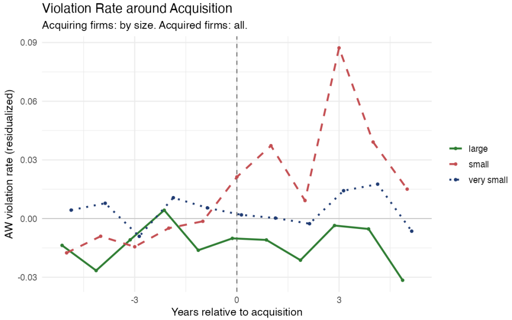
- When these small facilities are acquired by bigger parent companies, does their animal welfare record change?
- Do parent company or facility characteristics better explain violation rates?

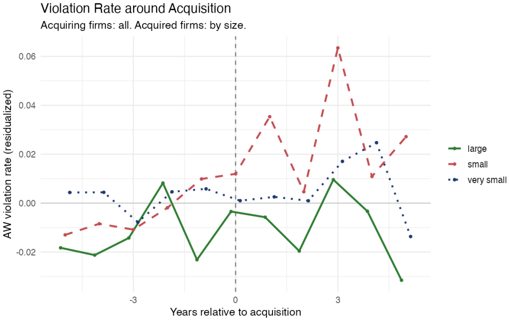
# Change in violations after acquisition



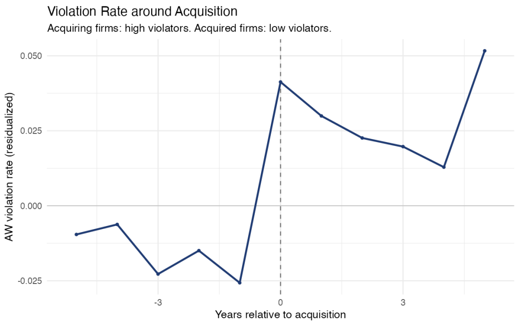
# Change in in violations after acquisition

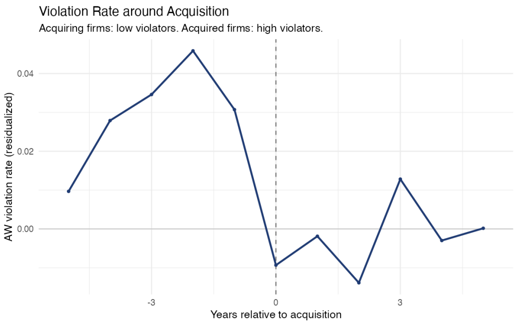
## By Size of Acquired Firm



# Change in violations after transfer to high vs low violator



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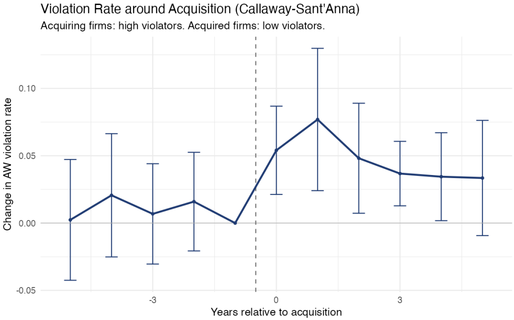


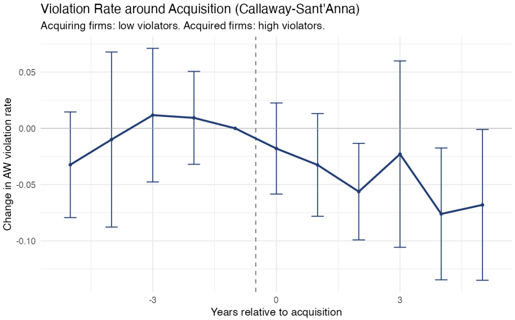

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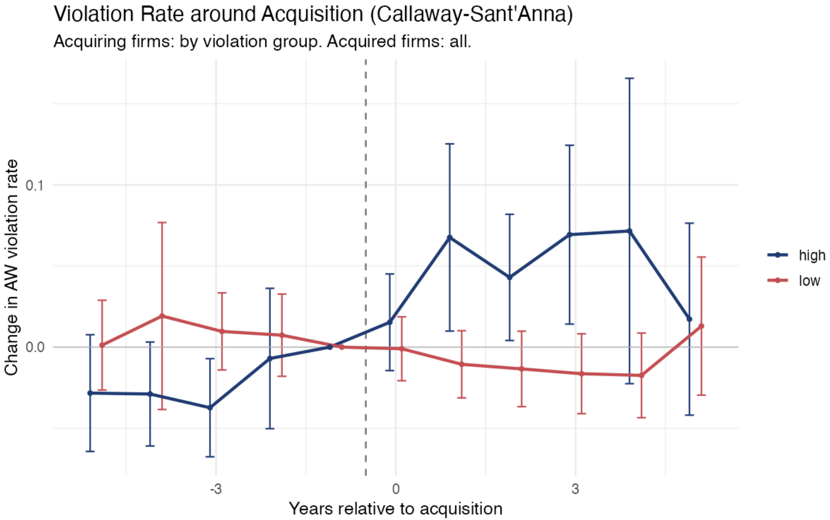
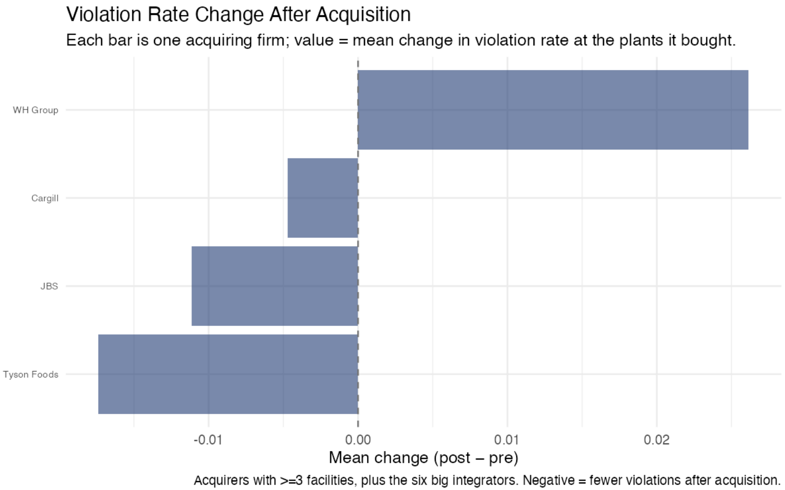


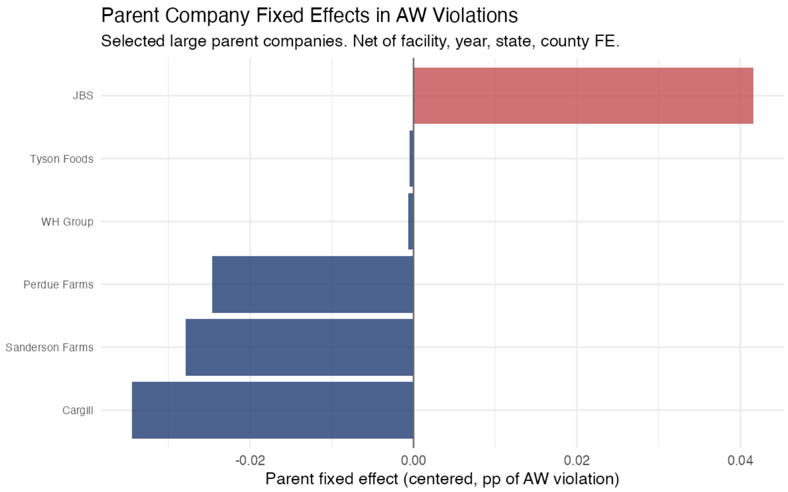
# Acquisition changes by parent company




Perdue made 1 acquisition and Sanderson Farms made 0 acquisitions in the sample period and are therefore excluded from this figure.

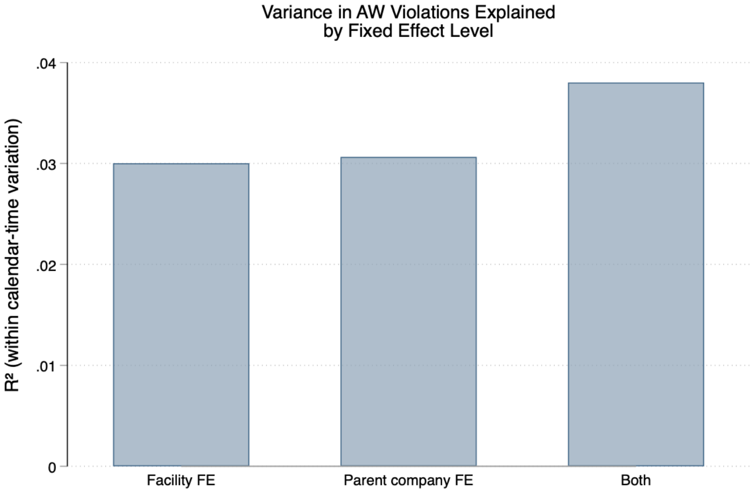
# How much can be explained by largest parent companies?

$$Y_{it} = \text{parent company FE}_{p(i)} + \text{facility FE}_i + \text{year}_t + \text{state}_s + \text{county}_c + \varepsilon_{it}$$



# How much can be explained by facility vs. parent companies?

$$Y_{it} = \text{parent company FE}_{p(i)} + \text{facility FE}_i + \text{year}_t + \text{state}_s + \text{county}_c + \varepsilon_{it}$$



# Takeaways

- Animal welfare improves with scale
  - Large, professionalized facilities have lowest violation rates
  - 8x violation gap between small and large facilities, controlling for time & location trends
- JBS is the worst animal welfare offenders among large companies
- Half of facilities account for the majority of violations
- Violation rates driven equally by facility-level FE than by parent company FE

# Towards Consumer Awareness of Animal Welfare Violations

# Linking Animal Welfare Violations to Consumer Purchases

- Link slaughterhouses to retailers and to consumer purchase data
- See link!

# Animal Welfare Violations across Retailer Types

## Violations at both Large Grocery Retailers, Small Grocery Retailers, Independent Stores and Restaurants

| Variable | Total | Is Major Grocer | |
|---|---|---|---|
| | | Yes | No |
| Total facilities (2011-2024 for violations) | 2,191 | 206 | 1,984 |
| Total facilities (2015-2024 for enforcements) | 2,095 | 196 | 1,898 |
| Share facilities w any AW violation | 50.1% | 56.8% | 49.4% |
| Share facilities w any enforcement | 28.1% | 20.9% | 28.9% |

# Conclusion

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- We find that animal welfare violations are common
- We find that increased concentration is correlated with decreased animal welfare violations
- We find that acquiring company violation rate matters for animal welfare violations of acquired companies
- We find heterogenous effects among largest retailers (Tyson vs JBS)
- We find that meat at large grocery retailers is just as likely to come from a facility with animal welfare violations
- Consumers likely unaware of animal welfare violations