CHALLENGES FACING AGRICULTURAL CO-OPERATIVES: CONSOLIDATION, EFFICIENCY AND MARKET POWER

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CONSOLIDATION OF LOCAL CO-OPS

- Local co-operatives merging, acquiring assets from independents
- Result is fewer co-ops over time, but not fewer locations
- High-profile co-op mergers in Iowa (Landus), Nebraska (CVA), SD & ND (Agtegra)
- Environment of concern about market power
PRE-1980S: SINGLE-LOCATION CO-OPS DOMINATED THE LANDSCAPE
TODAY: MORE LOCATIONS, FEWER COMPANIES

Consolidation of Iowa's Grain & Farm Supply Cooperatives
1979 - 2017
1980s: Financial troubles, no appreciable change in locations (private acquisitions), mirrored loss of farms during period

1990s: HTA contract debacle forced restructuring

Current: Recent uptick in activity, typically “mergers of equals”
Approx. 50 G&FS co-ops (aka mixed)

- a few single locations remain

- Largest (Landus, in black) has 70+ locations and annual revenues > $1b

Source: Iowa Institute for Cooperatives, May 2018
CONSOLIDATION OBSERVATIONS

Drivers

- Access to strategic assets
- Succession and retention, access to talented GM
- Enhanced operational efficiency
- Access to capital
- Market protection for producers

Nearing tolerance threshold?

- Members weary and wary
Does firm performance improve post-merger?
HAS CONSOLIDATION ALLOWED CO-OPs TO ACHIEVE PURPORTED EFFICIENCIES?

- Profit margin = gross profit / sales
- Return on sales = local profits / sales
- Return on assets = local profits / fixed assets
- Return on equity = local profits / total equity
- Asset Turnover = sales / total assets
- Operational expense efficiency = op exp / gross margins
- Labor expense efficiency = local profits / personnel exp
- Members’ share of total equity = allocated equity / total equity
- Members’ share of local equity = allocated equity / local equity
Should we care?
HAS CONSOLIDATION ALLOWED CO-OPS TO ACHIEVE PURPORTED EFFICIENCIES?

- Profit margin = gross profit / sales (0)
- Return on sales = local profits / sales (0)
- Return on assets = local profits / fixed assets (0)
- Return on equity = local profits / total equity (0)
- Asset Turnover = sales / total assets (-0.17 to -0.21)
- Operational exp. eff. = op exp. / gross margins (-0.17 to -0.27)
- Labor exp. eff. = local profits / personnel exp. (0.19 – 0.26)
- Members’ share of total equity = allocated / total equity (0)
- Members’ share of local equity = allocated / local equity (-0.17 to -0.21)
CONSOLIDATION IS COSTLY

- Member heterogeneity – can you be ”the co-op” for all?
- Member perceptions of value proposition – the great balancing and education act
- Co-ops who hang the value of consolidation on efficiency and performance have a post-merger problem
- Board culture and membership culture
IS BIGGER (EXTERNALLY) BETTER?

Early joint work with Drs. Georgeanne Artz and Wendong Zhang, Iowa State University
MOTIVATION AND OBJECTIVES

Observed consolidation in the grain marketing industry – all levels of the supply chain

- Fewer marketing firms, but not necessarily fewer grain-buying locations
- “Co-ops are getting too big.”
- “There’s less competition for grain.”

What, if at anything, has been the impact of consolidation on grain bids to producers?

- Is there evidence of market power?
- Are co-op and independent bids systematically different?
INVESTIGATION STRATEGY

Co-op consolidation data since 1979
- Can observe locations’ ownership over time
- “Markets” with more/less concentration of grain buyers

Geograin Data
- Weekly corn and soybean bids from grain receiving locations in Iowa (co-ops and independents): June 1998 – Nov 2014
- Price bids include basis and contract price
- 393 markets in Iowa
- “Market” factors, i.e., rail and river loading, processor, feed mill

Currently match 264 of our 540 co-op locations to Geograin bid data
Interesting questions related to consolidation

- **Spatially**: across markets, do we identify differences in bids that are related to the degree of firm-level competition for grain? (monopsonistic spatial pricing evidence)
  - Do markets where co-ops compete with independents have ‘better bids’ than markets without co-ops?
  - Do markets where co-ops compete with other co-ops have better/worse bids than?

- **Temporally**: within markets, do we identify differences in bids that are related to firm size, co-op consolidations and acquisitions?
  - Do relative bids change over time as a result of co-op consolidations and acquisitions?
## The Data — Firm Characteristics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std. Dev</th>
<th>Min</th>
<th>Max</th>
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<tbody>
<tr>
<td>Cooperative</td>
<td>0.80</td>
<td>0.39</td>
<td>0</td>
<td>1</td>
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<td>Firm Size (branches)</td>
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<td>18.00</td>
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<td>Same within 15 mil</td>
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<td>2.41</td>
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<td>Same within 20 mi</td>
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<td>Same within 25 mi</td>
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<tr>
<td>Competing within 25 mi</td>
<td>21.13</td>
<td>9.13</td>
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<td>42</td>
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</table>
Simple model: \( \text{avg monthly bid}_{i,t} = \alpha + X'_{i,t} \beta + \mu_i + \nu_{i,t} \)

- RE model with monthly dummies, weekly price data
- Results from the model using 2002 data that include ‘competition’ in a certain radius and firm size are anomalous

| Variable       | Corn Coef Est | P < |z| | Soybeans Coef Est | P < |z| |
|----------------|---------------|------|------------------|------|
| Firm Branches  | 0.035         | 0.082| 0.277            | 0.237|
| Common in 15mi | -0.174        | 0.656| 0.156            | 0.407|
| Comp in 15 mi | -0.275        | 0.09 | 0.279            | 0.060|
| Cooperative    | -8.455        | 0.00 | -10.062          | 0.001|
| Processor      | 5.433         | 0.004| 4.021            | 0.216|
| Feed Mill      | -0.722        | 0.496| 0.179            | 0.920|
Simple model: \[ \text{avg monthly bid}_{i,t} = \alpha + X'_{i,t}\beta + \mu_i + \nu_{i,t} \]

- When ‘firm size’ and competition indicator variables are dropped, the results using 1999 – 2014 data make more sense

<table>
<thead>
<tr>
<th>Variable</th>
<th>Corn</th>
<th>Soybeans</th>
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<tbody>
<tr>
<td></td>
<td>Coef Est</td>
<td>P &lt;</td>
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<tr>
<td>Cooperative</td>
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<tr>
<td>Processor</td>
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<td>River Terminal</td>
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<td>Rail Terminal</td>
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THOUGHTS ON PROJECT

- Why do cooperatives offer significantly lower corn and soybean prices? How does this inform the impacts of consolidation on producers?

- Competition in a local area seems to be generating lower commodity prices, not higher. What are we missing or not controlling for?

- Is there a reason to think that this type of study cannot be used to answer the market power question?

- How much can we expect to gain from a more sophisticated (spatial) analysis?