

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

Dept. of Ag & Resource Economics and  
Centre for the Study of Co-operatives  
University of Saskatchewan



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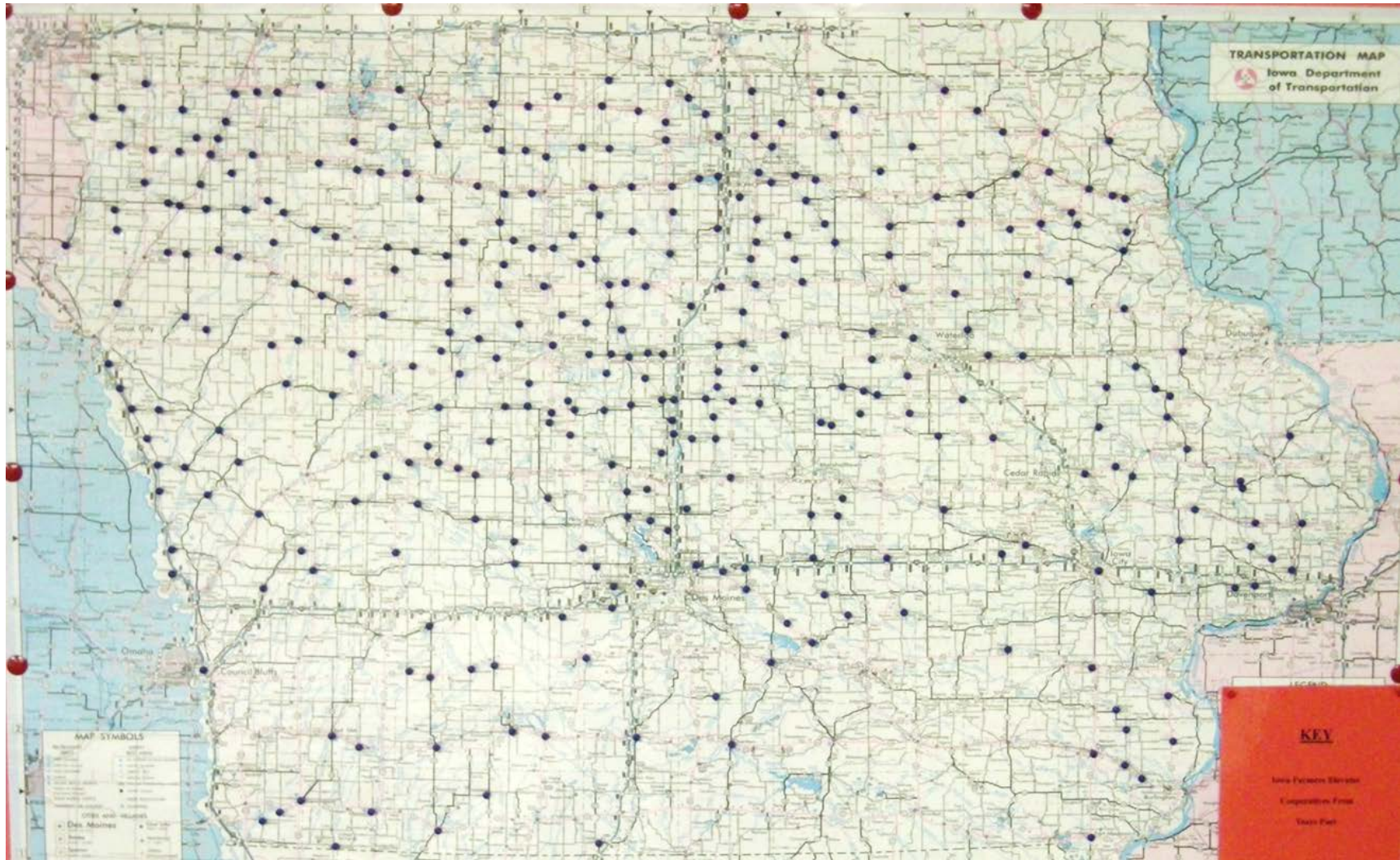
Keri Jacobs, Asst. Professor of Economics, Iowa State University

# 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

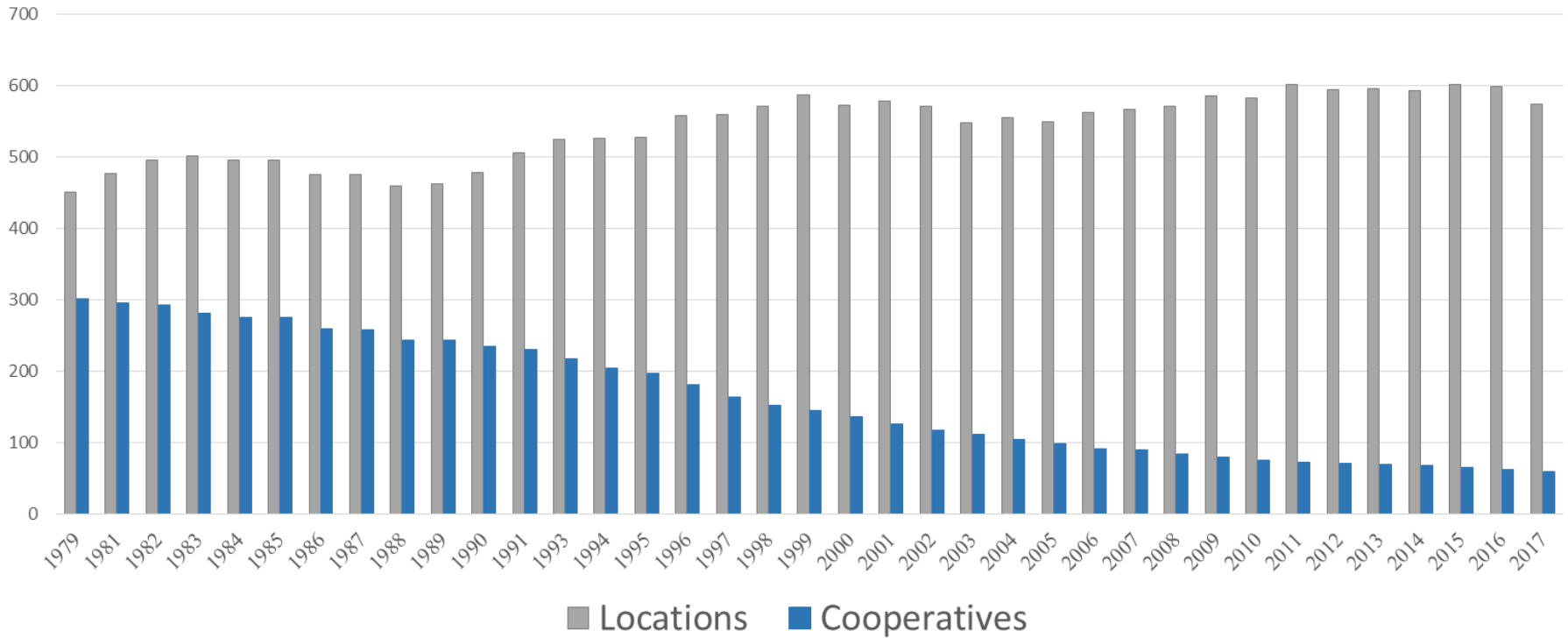


# PRE-1980S: SINGLE-LOCATION CO-OPS DOMINATED THE LANDSCAPE

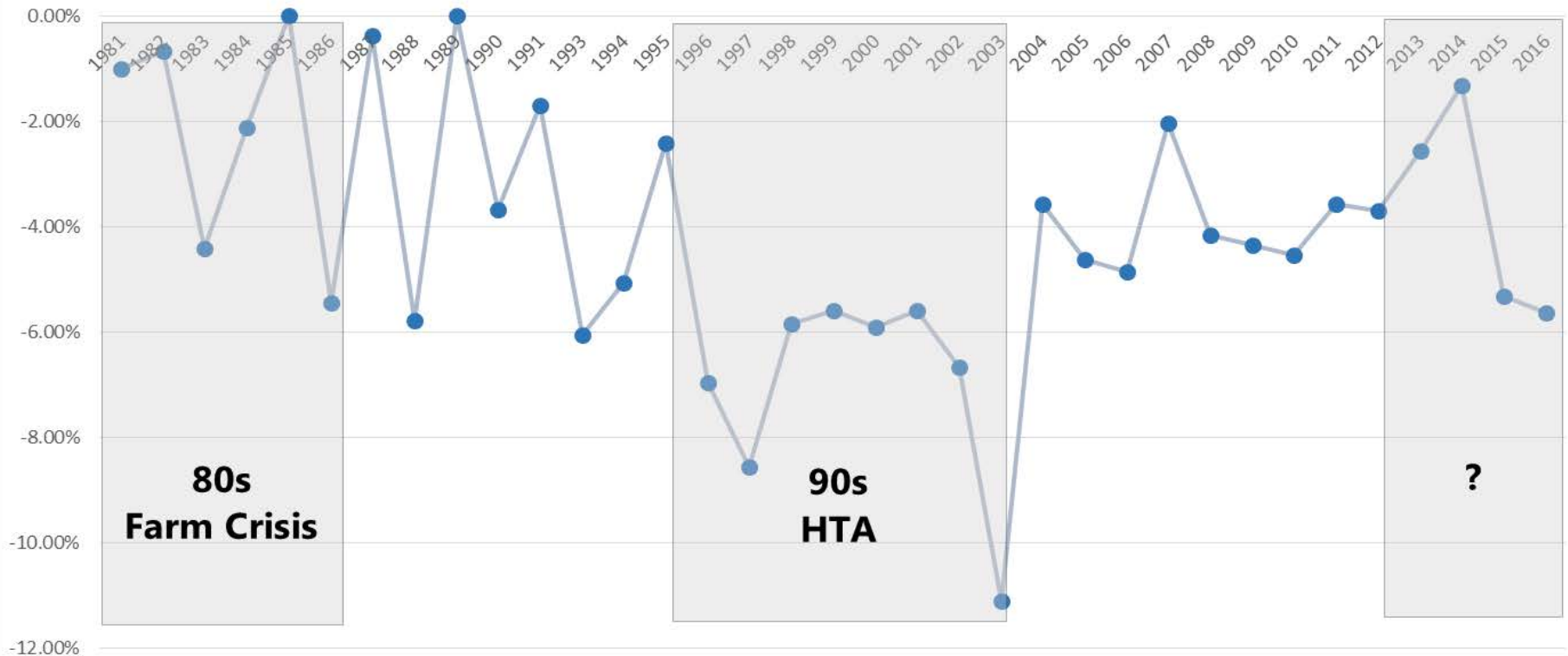


# TODAY: MORE LOCATIONS, FEWER COMPANIES

Consolidation of Iowa's Grain & Farm Supply Cooperatives  
1979 - 2017



Annual Change in Number of Cooperatives, Iowa

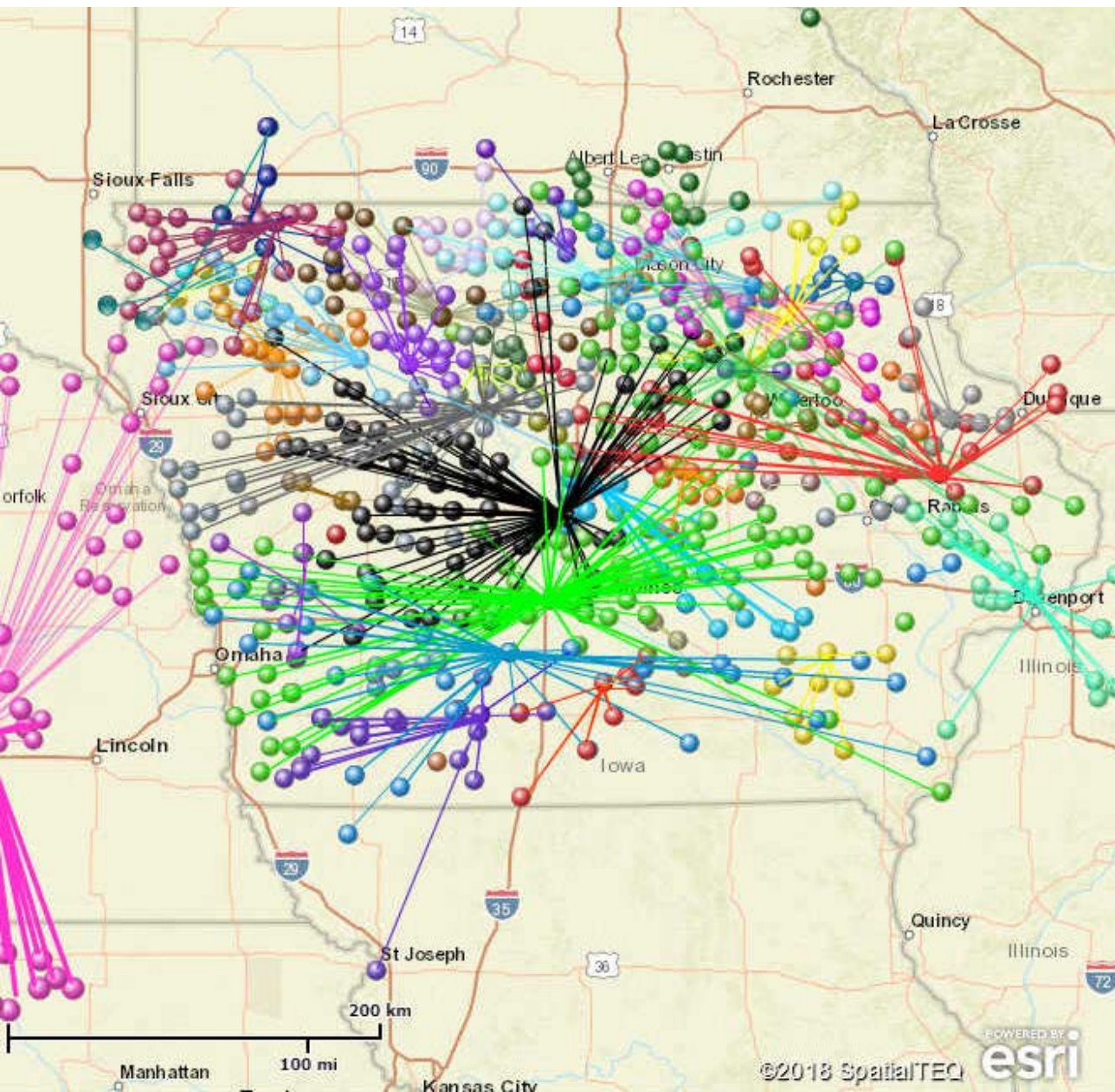


**1980s:** Financial troubles, no appreciable change in locations (private acquisitions), mirrored loss of farms during period

**1990s:** HTA contract debacle forced restructuring

**Current:** Recent uptick in activity, typically “mergers of equals”





## IOWA' LOCAL GRAIN AND FS CO-OPS, 2018

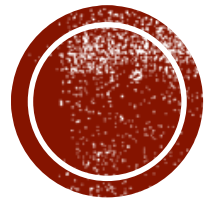
- Approx. 50 G&FS co-ops (aka mixed)
- a few single locations remain
- Largest (Landus, in black) has 70+ locations and annual revenues > \$1b

Source: Iowa Institute for Cooperatives, May 2018



# CONSOLIDATION OBSERVATIONS





# IS BIGGER (INTERNALLY) BETTER?

Does firm performance improve post-merger?

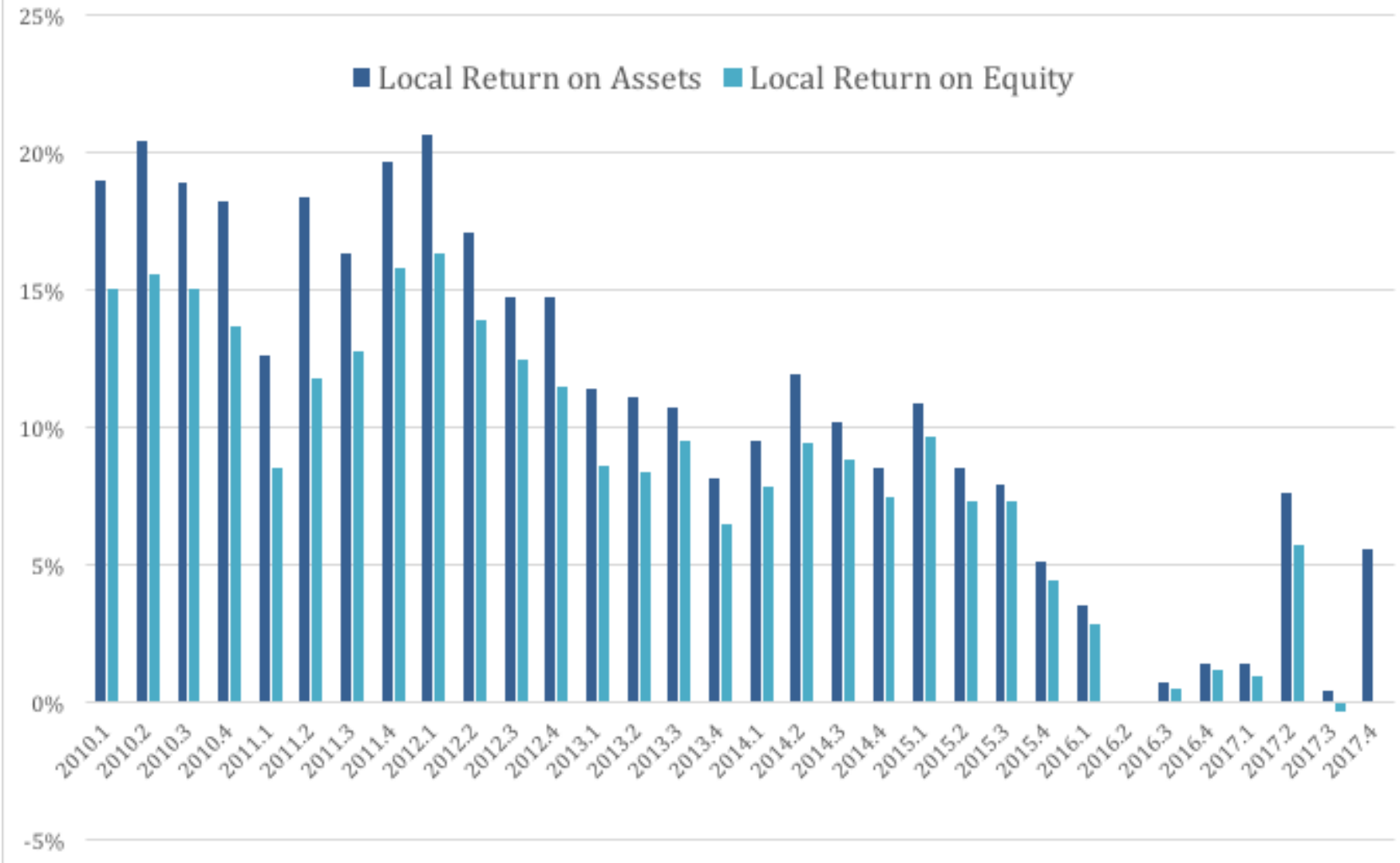


# HAS CONSOLIDATION ALLOWED CO-OPS TO ACHIEVE PURPORTED EFFICIENCIES?

- 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

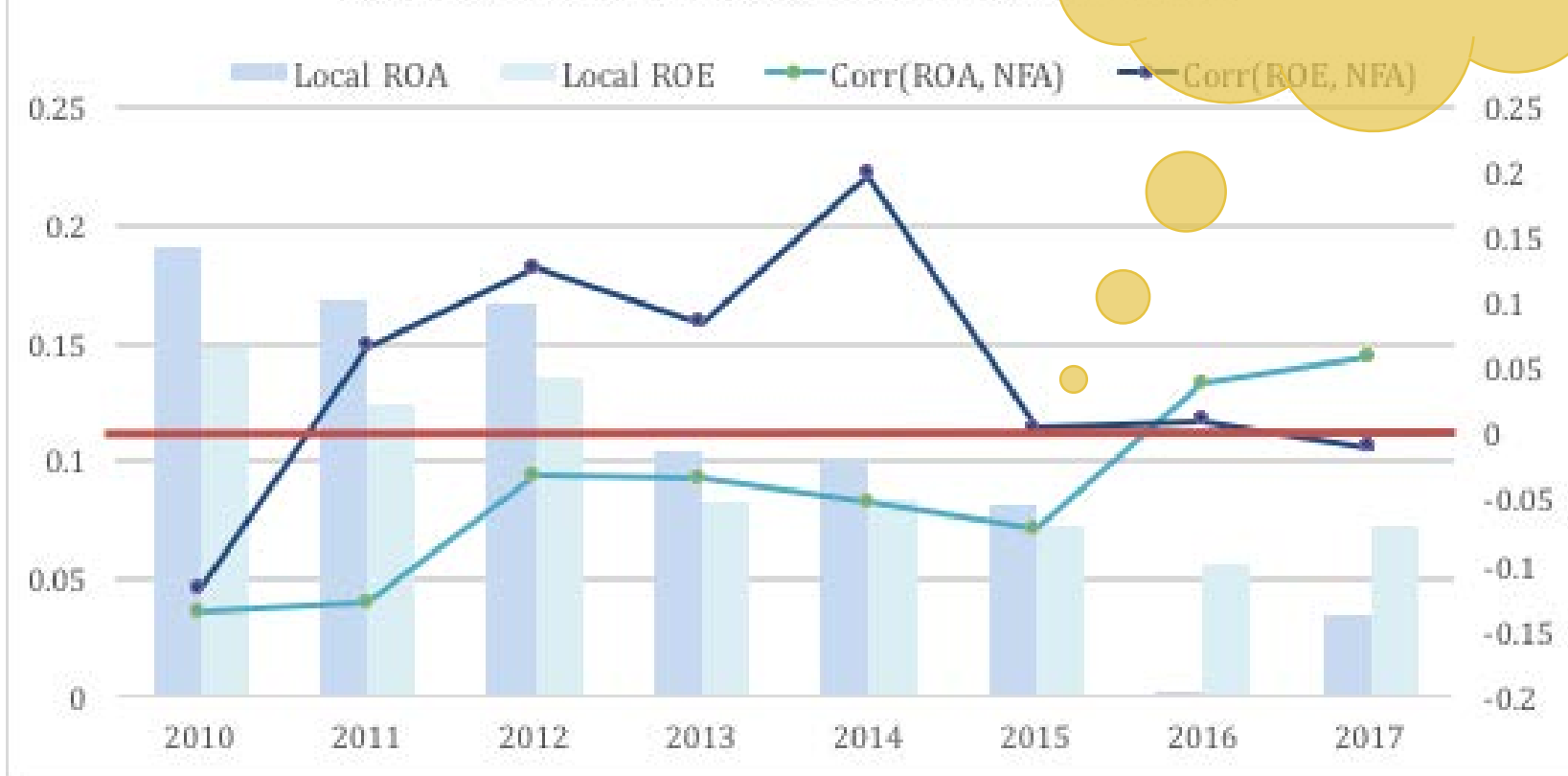


## Local Return on Sales and Equity of Iowa Co-ops, 2010 - 2017








Should we care?

## ROA and ROE Not Correlated with "Size"



# HAS CONSOLIDATION ALLOWED CO-OPS TO ACHIEVE PURPORTED EFFICIENCIES?

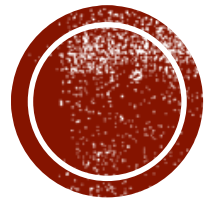
- Profit margin = gross profit / sales 
- Return on sales = local profits / sales 
- Return on assets = local profits / fixed assets 
- Return on equity = local profits / total equity 
- Asset Turnover = sales / total assets (-0.17 to -0.21)
- Operational exp. eff. = op exp. / gross margins (-0.17 to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





# INVESTIGATION STRATEGY

Interesting questions related to consolidation

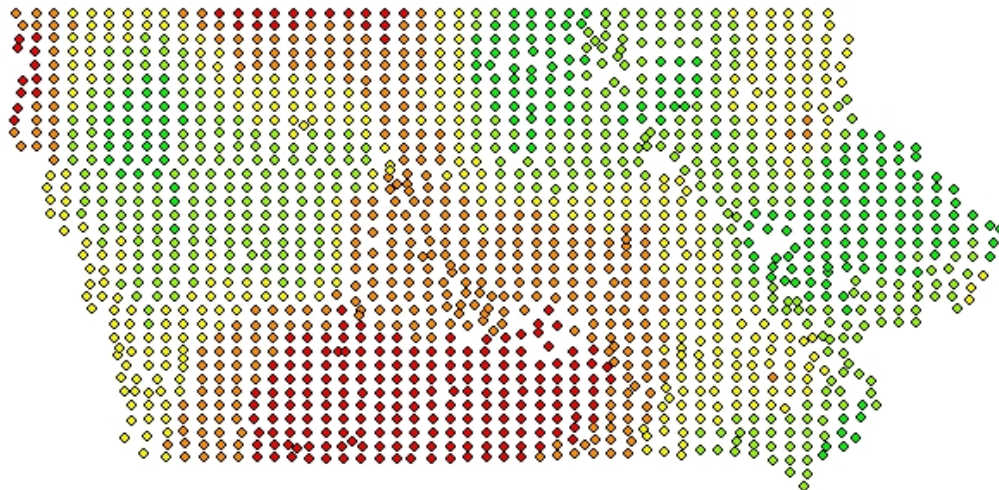
- **Spatially:** across markets, do we identify differences in bids that are related to the degree of firm-level competition for grain? (monopsonistic spatial pricing evidence)
  - Do markets where co-ops compete with independents have 'better bids' than markets without co-ops?
  - Do markets where co-ops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

Variable	Mean	Std. Dev	Min	Max
Cooperative	0.80	0.39	0	1
Firm Size (branches)	18.99	18.00	1	55
Same within 15 mil	3.61	2.41	1	11
Same within 20 mi	4.95	3.56	1	19
Same within 25 mi	6.20	4.84	1	25
Competing within 15 mi	6.35	3.72	0	19
Competing within 20 mi	12.59	6.03	0	32
Competing within 25 mi	21.13	9.13	1	42



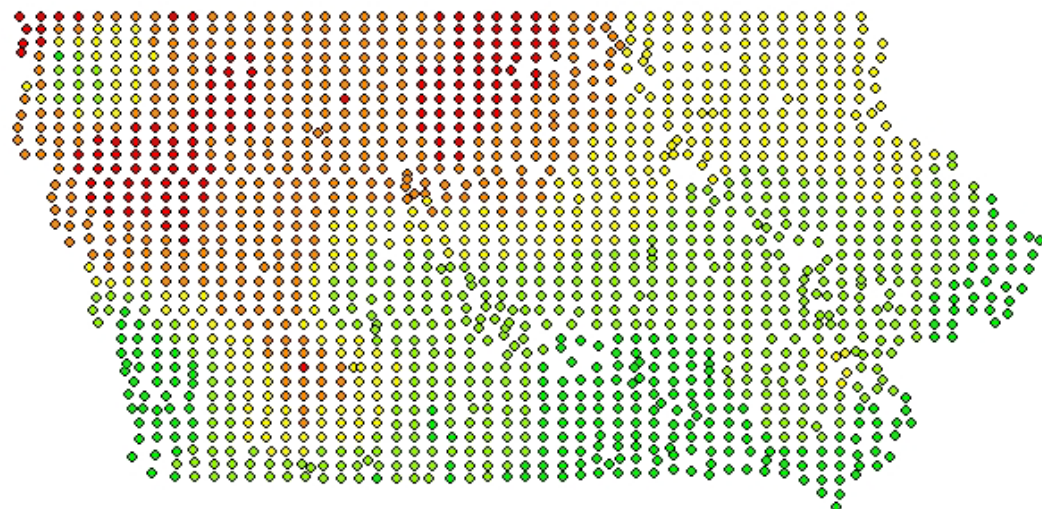


**Legend**

**Corn Basis 2009 Oct 26 - Nov 1**

**RASTERVALU**

- ◆ -45 to -35 cents/bu
- ◆ -35 to -27 cents/bu
- ◆ -27 to -19 cents/bu
- ◆ -19 to -11 cents/bu
- ◆ -11 to -2 cents/bu



**Legend**

**Corn Basis 2001 Oct 29 - Nov 4**

**RASTERVALU**

- ◆ -51 to -39 cents/bu
- ◆ -39 to -36 cents/bu
- ◆ -36 to -33 cents/bu
- ◆ -33 to -30 cents/bu
- ◆ -30 to -24 cents/bu



Simple model:  $avg\ monthly\ bid_{i,t} = \alpha + X'_{i,t}\beta + \mu_i + v_{i,t}$

- 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		Soybeans	
	Coef Est	P <  z	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
<b>Comp in 15 mi</b>	<b>-0.275</b>	0.09	<b>0.279</b>	0.060
<b>Cooperative</b>	<b>-8.455</b>	0.00	<b>-10.062</b>	0.001
Processor	5.433	0.004	4.021	0.216
Feed Mill	-0.722	0.496	0.179	0.920



Simple model:  $avg\ monthly\ bid_{i,t} = \alpha + X'_{i,t}\beta + \mu_i + v_{i,t}$

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

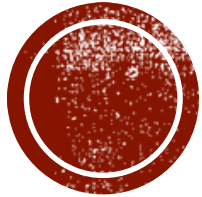
Variable	Corn		Soybeans	
	Coef Est	P <  z	Coef Est	P <  z
Cooperative	-3.107	0.008	-2.795	0.20
Processor	6.173	0.000	14.512	0.00
Feed Mill	-0.415	0.677	-0.975	0.53
River Terminal	1.726	0.452	9.013	0.008
Rail Terminal	0.472	0.632	-0.731	0.565



# 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?





**KERI L. JACOBS**  
**kljacobs @ iastate.edu**