COMMON AGENCY: CONSPIRACY OF CONSCIOUS PARALLELISM? INDIRECT EVIDENCE FROM A REPEATED ENGLISH AUCTION

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INTRODUCTION & FINDINGS

- Existing literature related to conspiracy in auctions focuses on bidding rings (e.g. McAfee and McMillan 1992; Porter and Zona 1993; Porter and Zona 1999; Deltas 2002; Phillips, Menkhaus and Coatney 2003; Porter 2005; and Hendricks, Porter and Tan 2008)
- Bidding rings include competitors directly involved in the auctioning process.
- The economics literature has not considered whether or not members of a known buyer collaboration exhibit collusive behavior outside the auction.
- Buyer collaborations are formed when subsets of principal purchasers, either jointly or independently, share a common agent. In this study the common agent bids on behalf of the collaborators not present at the auction.
- Our research discusses some important elements for evaluating common agency and its relationship to conspiracy in cattle markets.
- Thus far, our preliminary findings and interpretations of available evidences indicate that an allegation of agreement among competitors is justified, thus undermining conscious parallelism claims.
- Furthermore, it is most likely the case that the principals intentionally reduce competition through collaboration.
- Regardless of conspiracy, the empirical results indicate that the collaboration resulted in an antitrust injury by lowering prices paid to sellers.

BACKGROUND & ANALYSIS SETTING

- Common agency has a long history and remains pervasive throughout the cattle industry.
- During 2006, 3,883 common agents, such as registered commissioned cattle order-buyers and dealers purchased $4.5 billion and $21.9 billion totaling on average $26.4 billion in livestock (United States Department of Agriculture, Grain Inspection, Packers and Stockyards Administration. 2008 Annual Report: Packers & Stockyards Program, 2009, Washington, D.C. March 1, 2009).
- Commission order-buyers are by nature common agents paid on a flat $ per unit purchased.
- Dealers, though allegedly principals themselves, receive multiple resale offers from principal purchasers.
- Complaints by the industry that common agency reduces competition, especially in already highly concentrated markets (United States Department of Agriculture, Grain Inspection, Packers and Stockyards Administration. Assessment of the Cattle, Hog and Poultry Industries Calendar Year 2004, Washington, D.C. April 2005).
- The setting for our research is a cull cow auction market located in the Midwest from October 4, 1999 through January 26, 2000 representing 7722 separate transactions.
- The market consists of a single common agent (commission order-buyer) representing three principals (2 packers and 1 order-buying firm) and a competitive fringe. The common agent purchased nearly 75% of the market.

PRIMARY ANTITRUST CONCERNS

1. Unilateral price depression via decreasing the number of competitors (Antitrust Guidelines for Collaborations Among Competitors, 2000; bid rigging literature).
2. Exclusionary conduct by an advantaged competitor that reduces competition (Antitrust Guidelines for Collaborations Among Competitors, 2000; Bikhchandani 1988; Klemperer 1998; and Rose and Kagel 2008).
3. Collusion among collaborators to obtain the benefits 1 and or 2 above (Bernheim and Whinston 1985, 1986; Antitrust Guidelines for Collaborations Among Competitors, 2000; Dick 1996; and Eckbo 1976).

PROCOMPETITIVE JUSTIFICATION: Efficiency gain by small firms to compete against large firms (Brown Shoe Co. v. U.S., 370 U.S. 82 S.Ct. 1502)

I. CONSPIRACY EVIDENTIARY REQUIREMENTS

1. Buyers are competitors (Antitrust Guidelines for Collaborations Among Competitors, 2000).
2. There must be an agreement:
   - Direct Evidence
     - Communication between collaborators
     - Communication through common agent (Interstate Circuit, Inc. v. United States, 306 U.S. 208, 59 S.Ct. 467, 83 L.Ed. 610; and Toys "R" Us, Inc. v. Federal Trade Commission, 221 F.3d 928).
   - Circumstantial Evidence – "meeting of the minds"
     - Maintaining market shares or prices not indicative of firms pursuing their 'independent economic self-interest' (1999 WL 33639374 (U.S.), Industrial Chemicals, Inc. v. City of Tuscaloosa 528 U.S. 812, 120 S.Ct. 47 (Mem) U.S.(1999))
     - Competitors hire a common agent (Interstate Circuit, Inc. v. United States, 306 U.S. 208, 59 S.Ct. 467, 83 L.Ed. 610; Toys "R" Us, Inc. v. Federal Trade Commission, 221 F.3d 928).
3. Agreement is to achieve an illegal goal.

II. IMPEDIMENTS TO CONCERTED ACTION (Gavil, Kovacic and Baker 2008, pg. 235)

1. Reaching consensus.
2. Deterring deviation through detection of cheating and a credible threat of punishment for cheating.
3. Preventing new competition.

III. COMMON AGENCY OVERCOMES IMPEDIMENTS TO CONCERTED ACTION

1. Overcomes first impediment by eliminating repeated negotiations of 'fair' distribution of gains (Dick 1996; and Eckbo 1976).
2. Overcomes first part of second impediment by delegation (Dick 1996; and Eckbo 1976), but leaves the second half unexplained using current principal/agent theory.
3. Overcomes third impediment when efficiencies result in the common agent being an advantaged bidder in common value auctions (Bikhchandani 1988, Klemperer 1998, and Rose and Kagel 2008)

IV. CURRENT EVIDENCES SUPPORTING AGREEMENT

1. Collaborators are competitors regardless of 'type' preferences (Monfort of Colorado v. Cargill, Inc., 591 F. Supp. 683, 706 (D. Colo. 1983), aff'd, 761 F.2d 570 (10th Cir.1985), judgment rev'd, 479 U.S. 104 (1986)).
2. Commission agents and dealers are by definition common agents and there is no exclusive agreement in place by any of the collaborators.
3. Relationships and information are available to facilitate an understanding among collaborators.
   - Two of the collaboration principals are related.
   - The use of the common agent has been in place for many years.
   - Common agent purchases for principals in a public setting.
4. Nearly identical purchases by *asymmetric* firms over time frame analyzed indicating competitors are not acting in their 'economic self interest' (1999 WL 33639374 (U.S.), Industrial Chemicals, Inc. v. City of Tuscaloosa 528 U.S. 812, 120 S.Ct. 47 (Mem) U.S.(1999)).
   - Principals 1, 2, 3 purchased 1852, 1990, 1851 head.
   - Principals 1 and 2 are packers while the third is a commission firm.
   - If the commission firm principal in turn represents a packer, the closet packer of similar size is located over twice the distance to the market than any other packer represented at the market.
5. Market shares of collaborators are relatively stable.
   - F-Test results indicate statistically lower variance of within collaboration market shares v. fringe competitors.
6. Common agent has no fiduciary responsibility to provide principals with equal market shares *unless* the collaborators *require* such an arrangement.
7. Commission agents has no identifiable incentive to independently and evenly distribute purchases.

V. CURRENT EVIDENCES & ARGUMENT SUPPORTING CONSPIRACY ALLEGATION

1. The firms in agreement are the major firms in the market, thus undermining an "against giants" efficiency argument (Brown Shoe Co. v. U.S., 370 U.S. 82 S.Ct. 1502).
2. Experienced buyers know that common agency necessarily reduces the number of competitors at auction (Hennessey, 57 Agric.Dec. 1432 (1998)).
   - Increases in concentration result in lower prices. (**See Empirical Bidding Agent Model and Results**).
3. Through buyer profit/loss reports, collaborators recognize the efficiency gains of common agency provides a strategic advantage resulting in lessening competition from fringe competitors.
   - Common agent purchases more units at reduced prices than fringe competitors (**See Empirical Bidding Agent Model and Results**).

VI. COUNTER AGRUMENTS AGAINST CONSPIRACY ALLEGATION

1. Collaborators are not competitors based on different preferences (Hennessey, 57 Agric.Dec. 1432 (1998)).
2. Competing collaborators know they have hired an agent in common but make independent purchasing decisions. Suspicious behavior such as equal market shares among competitors found in this study are a result of
   - 'Conscious parallelism' a non-cooperative result of *symmetric* firms (1999 WL 33639374 (U.S.), Industrial Chemicals, Inc. v. City of Tuscaloosa 528 U.S. 812, 120 S.Ct. 47 (Mem) U.S.(1999)) or
   - Common agent independently controls and distributes purchases based on cattle types non-cooperatively preferred by principals.
3. Smaller variance in collaboration market shares is a result of common agent independently controlling distribution based on cattle types preferred by principals.
4. Unilateral incentive to form buying collaboration is a non-cooperative result based on expected efficiency gains from hiring a common agent.
5. Seeking efficiency by hiring common agents is not i*ntended* to result in lessening competition.
6. Government sanctioning of common agency (P&S Act 1921, as Amended).

VII. EMPIRICAL EVIDENCE FOR NON-COOPERATIVE OUTCOMES

1. Empirical evidence suggest that common agent fits the cattle to individual principal preferences (**See Within Collaboration Market Share Analysis**).
   - Heterogeneous buy-orders examined over long periods of time may result in equal market shares when the degree of separation between preferences does not result in one principal purchasing solely in the tails of the joint distribution of input characteristics.
     - This result also supports a finding that collaborators are competitors.
2. Empirical evidence suggests there is a unilateral incentive to non-cooperatively hire a common agent (**See Empirical Bidding Agent Results**).
   - Collaboration increases bidder concentration, thus reducing prices paid.
   - Collaborator's common agent pays less than rival bidders.

Market Share Results Summary

1. Common agent adjusts collaborators market shares based on deviations in cattle characteristics delivered to the auction.
2. Deviation in prices paid (SPPrinDev) by collaborators does not impact purchase distribution.

$$MS_{it} = \alpha + \boldsymbol{\beta}\mathbf{X}_{it} + \varepsilon_{it}$$

where $\sum_{i=1}^{c} MS_{it} = 1$

Deviations form:

$$ms_{it} = \boldsymbol{\beta}_j\left(\mathbf{X}_{it} - \frac{1}{c}\sum_{i=1}^{c}\mathbf{X}_i\right)_j + v_{it}$$

with cross-equation restrictions

$$\sum_{i=1}^{c} ms_i = 0$$

Collaborator	AucLWDev	AucNegDev	AucHCDev	SPPrinDev
1	0.02	-0.50	0.40*	0.06
	(0.05)	(0.31)	(0.11)	(0.21)
2	0.12*	-0.04	-0.46*	-0.09
	(0.04)	(0.27)	(0.10)	(0.19)
3	-0.15*	0.54*	0.06	0.03
	(0.04)	(0.28)	(0.10)	(0.13)

SUR Estimates
System Weighted $R^2 = .46$
*Reject null at $\alpha = 0.01$
$DW_{1,2,3} = 1.78, 2.14, 2.08$

Empirical Bidding Agent Model & Results

$$SP_t = \beta_0 + \beta_1 CHHIA_t + \beta_2 COM_t + \beta_3 L1SP_t + \beta_4 CV_t + \beta_5 HC_t + \beta_6 Neg_t + \beta_7 Wt_t + \beta_8 Wt^2_t + \beta_9 Wt^3_t + \beta_{10} ST_t + \beta_{11} T_t + \varepsilon_t$$

where *a priori*:

$\beta_1 < 0,\ \beta_2 < 0,\ \beta_3 > 0,\ \beta_4 > 0,\ \beta_5 < 0,\ \beta_6 < 0,\ \beta_7 > 0,\ \beta_8 < 0,\ \beta_9 > 0,\ \beta_{10} \neq 0,$ *and* $\beta_{11} \neq 0$

and

$$CHHIA = \alpha_0 + \alpha_1 SP_t + \alpha_2 L1CHHIA_t + \alpha_3 HC_t + \alpha_4 Neg_t + \alpha_5 Wt_t + \alpha_6 Wt^2_t + \alpha_7 ST_t + \alpha_8 T_t + u_t$$

where *a priori*:

$\alpha_1 < 0,\ \alpha_2 > 0,\ \alpha_3 < 0,\ \alpha_4 < 0,\ \alpha_5 > 0,\ \alpha_6 < 0,\ \alpha_7 \neq 0,\ \alpha_8 \neq 0$

where:

- SP_t = t[th] observed Selling Price ($/cwt);
- *CHHIA* = Cumulative Herfindahl-Hirschman Index of winning bidders for the agents/principals present at sale ranging from 0 to 10,000;
- *COM* = Common dominant bidder dummy variable, taking a value of 1 if agent buys and 0 otherwise;
- *CV* = Current day carcass cut-out value index for cutter cows;
- *HC* = Holstein cow dummy variable, non-Holstein = 0;
- *Neg* = Negative attribute dummy variable, non-negative = 0;
- *Wt* = Animal weight in pounds;
- *ST* = Within sale trend → order of units sold per auction;
- *T* = Overall trend observation, 1 – 7,722;
- *L1SP* = Instrumented Lagged Selling Price lagged one unit sold ($/cwt); and
- *L1CHHIA* = Instrumented Lagged Cumulative Herfindahl-Hirschman Index of winning bidders for the agents/buyers lagged one unit sold.

Regressors	Selling Price 2SLS (std.err.)	CHHIA 2SLS (std.err.)
Intercept	-14.99*	6121.37*
	(3.81)	(581.50)
SP		-5.91*
		(0.36)
L1SP	0.09*	
	(0.01)	
CHHIA	**-0.0003***	
	(0.00006)[3]	
L1CHHIA		0.06*
		(0.01)
COM	**-2.64***	
	(0.10)[3]	
CV	0.29*	
	(0.03)	
HC	-1.93*	-12.96*
	(0.10)	(2.42)
NEG	-7.25*	-28.44*
	(0.13)	(3.77)
WT	0.05*	0.16*
	(0.01)	(0.04)
WT^2	-0.00002*	-0.00005*
	(6.1E-6)	(0.00001)
WT^3	5.5E-9*	
	(1.5E-9)	
ST	-0.001	-4.23*
	(0.001)	(0.59)
T	-0.00009*	-0.04
	(0.00004)	(0.12)
Hausman's Specification Test	OLS v. 2SLS: m = 149.2* OLS v. 3SLS: m = -3941 3SLS v. 2SLS: m = 2929*	Hausman's Specification Test
R^2	0.59	0.98
Rho	-0.09[1]	-0.24[1]
Durbin-Watson	1.81[1]	1.52
Basman's OverID	15.69*	151.41*

* Reject null at $\alpha = 0.01$.
[1] Rho and Durbin-Watson were calculated during the second-stage before implementing the AR1 process in the system.
[2]Though D-W is in the indeterminate region of the Durbin-Watson statistic, estimates reported are corrected for first-order autocorrelation.

VIII. SUMMARY OF ARGUMENTS AND CONCLUSIONS

- The act of hiring an agent whose widely known business is to represent multiple principals establishes a 'meeting of the minds' among those who hire them.
- Absent evidence to substantiate preferences result in equal market share, there is a strong argument that collaborators have agreed to equal market shares.
- Strongest counter argument to conspiracy is that seeking efficiencies through government approved common agents is not *per se* illegal. As such, courts and enforcement agencies will likely evaluate the agreement under a *rule of reason* analysis (Antitrust Guidelines for Collaborations Among Competitors, 2000).
- From the empirical findings, common agency facilitates a reduction in competition at auction which in turn provides the means to deter defection from either collaboration or conspiracy.
- Anticompetitive effects of common agency, such as the reduction in the number of bidders and the creation of an advantaged bidder, are independent of conspiracy.
- Foreclosing the use of the common agent in the current analysis is expected to enhance competition.

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