WAL-MART, PRIVATE LABELS, AND SUPERMARKET MILK PRICES

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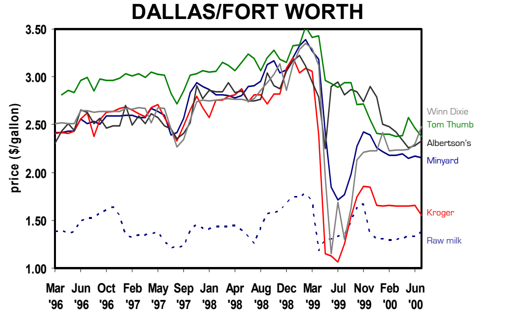
WAL-MART INNOVATES IN FOOD-RETAILING SECTOR

- Barnes et. al. (1996) found that, as Wal-Mart entered food retailing, stores in the northeast often fared better than their counterparts in the south, since the northern food retailing market is more competitive.
- Wal-Mart first began food retailing with its Supercenter format in 1988 in Washington, MO; Wal-Mart brought its Supercenter format to Dallas/Fort Worth in 1995 (Market Scope, 1994).
- Hausman and Leibtag (2006) conclude that not only do Wal-Mart-like stores significantly lower prices, but also that prices change because households change their purchasing behavior, seeking convenience.

SUPERMARKET MILK PRICES IN DALLAS/FORT WORTH



THE DALLAS/FORT WORTH MILK MARKET HAS NON COMPETITIVE CHARACTERISTICS

Why Dallas/Fort Worth?

- Southern location– southern stores are impacted more heavily by mass merchandisers (Barnes et. al. 1996)
- top two players in this market are also the top two players nationally: Albertsons and Kroger

Existing theories about the odd pricing behavior:

- a price war where some retailers were charging below the farm price — maybe they feel threatened by a powerful entrant like Wal-Mart (Cotterill and Brundage, 2001)
- cost and demand shocks give incentives for firms to collude in some periods and defect in others (Kim, 2000)

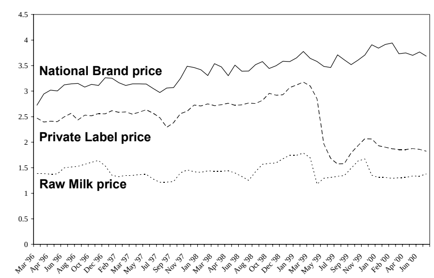
DO CONSUMERS THINK TRADITIONAL RETAILERS AND MILK BRANDS ARE MORE SIMILIAR AFTER WM ENTERS?

- Need to determine a measure of heterogeneity between brands and retailers and if this measure changes with the number of Wal-Mart Supercenters in the area

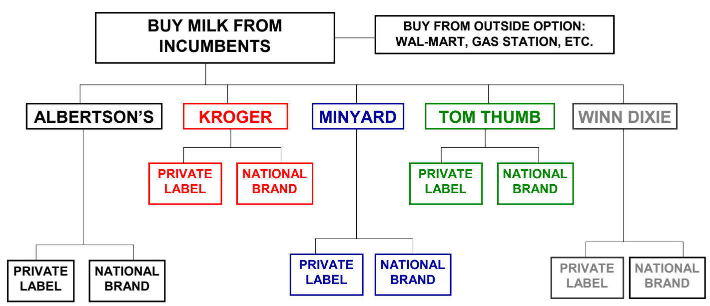
DO RETAILERS CHANGE THEIR STRATEGIES AFTER WM ENTERS?

- Retailers may be using their Private Label milk to retain consumers when Wal-Mart Supercenters entered the area, National Brand may not be able to respond as quickly
- National Brand milk, being sold at both incumbent retailers and Wal-Mart Supercenters may have an incentive to differ in its strategic response than Private Label milk

DOES PRIVATE LABEL MILK RESPOND DIFFERENTLY THAN NATIONAL BRAND MILK TO WM'S ENTRY?



NESTED LOGIT DEMAND WITH PRICE REACTIONS



UNIQUE IRI PANEL DATA FROM FMPC, GMM ESTIMATOR

- Core data are from the Information Resources Incorporated-Infoscan (IRI) database provided by the Food Marketing and Policy Center at the University of Connecticut: 58 four-week-ending (henceforth, monthly) observations (March 1996 - July 2000) in the metropolitan statistical area of Dallas/Fort Worth
- Input prices (raw milk, energy, retail wages) were obtained from publicly available sources.
- The annual number of Wal-Mart Supercenters in Dallas/Fort Worth is from Market Scope and the monthly number of openings was inferred using the entry strategy revealed by Sam Walton (Wal-Mart founder) in his autobiography.
- The system of a demand equation and first order condition for pricing is recursive, non-linear in parameters, has a cross-equation restrictions, and is estimated using the generalized method of moments (GMM) technique.

PARAMETER ESTIMATES

Parameter	Estimate	Standard Error	P-Value
δ	-0.19365	0.0216	<.0001
α_0	0.998368	0.104	<.0001
α_1	0.066399	0.0074	<.0001
σ_{0I}	0.764938	0.0169	<.0001
σ_{1I}	0.029935	0.00099	<.0001
σ_{0J}	0.027052	0.00199	<.0001
σ_{1J}	0.007592	0.000458	<.0001
φ_{01}	0.827521	0.1727	<.0001
φ_{11}	-0.12407	0.0225	<.0001
φ_{02}	0.469405	0.1026	<.0001
φ_{12}	-0.09141	0.0144	<.0001
φ_{03}	0.600873	0.1833	0.0011
φ_{13}	-0.09294	0.0236	<.0001
φ_{04}	1.711198	1.9811	0.388
φ_{14}	-0.21281	0.2475	0.3902
φ_{05}	7.635094	4.9943	0.1268
φ_{15}	-0.74742	0.499	0.1347

RESIDUAL DEMAND ELASTICITIES

		Without Wal-Mart			With Wal-Mart		
CHAIN	PRODUCT	$\theta_{i\|j}$	$\theta_{j\|J}$	θ_J	$\theta_{i\|j}$	$\theta_{j\|J}$	θ_J
Albertsons	Private Label	-1.67	-1.61	-0.23	0.73	-0.40	-0.05
Kroger	Private Label	-0.45	-1.83	-0.20	0.28	-0.54	-0.05
Minyard	Private Label	-7.46	-0.84	-0.05	4.57	-0.25	-0.01
Tom Thumb	Private Label	-2.08	-1.90	-0.15	1.27	-0.56	-0.04
Winn Dixie	Private Label	-0.36	-2.25	-0.10	0.22	-0.66	-0.03
Albertsons	National Brand	-12.23	-0.17	-0.07	7.49	-0.18	-0.02
Kroger	National Brand	-16.71	-0.61	-0.02	10.23	-0.06	-0.01
Minyard	National Brand	-3.73	-0.21	-0.10	2.29	-0.53	-0.03
Tom Thumb	National Brand	-14.26	-1.81	-0.05	8.73	-0.22	-0.01
Winn Dixie	National Brand	-18.84	-0.74	-0.01	11.54	-0.05	0.00

CONCLUSIONS

- Wal-Mart Supercenters decreases the non-competitive behavior of the top three players in the market while having no significant effect on the price reactions of smaller players
- Wal-Mart increases the substitutability of incumbent retailers and brands sold at incumbent retailers
- Traditional-retailer consumers become more price sensitive with the entry of Wal-Mart Supercenters
- Wal-Mart Supercenters decreases the overall share of incumbent retailers in the retail fluid milk market