Upstream Collusion and Vertical Contracting

The US Canned Tuna Cartel

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Context

- Multiple cases of upstream cartels have been brought before the court in US/EU.
- Often prices are negotiated between producers and retailers.
  - In this case, compliance with the cartel agreement by its members is difficult.
- This project studies upstream cartels with a price fixing mechanism but not a market allocation one.
- Producers announce a list with a price for each product to their retailers (list prices).
  - Cartel members agree on the announced list prices.
- Price negotiations under the cartel agreement between producers and retailers create a trade-off.
  - Retailers' market power mitigates the cartel's effect on the retail prices the final consumers pay.
  - Cartel members can reach an outcome closer to 1st-degree price discrimination.

Research Question

- How bargaining over collusive list prices between producers and retailers affects cartel stability, retailers' profits and consumers' welfare?
- Concentrate on the US canned tuna cartel case.
- Counterfactuals:
  - Assess the effect of bargaining on the collusive outcomes.
  - Asses the effect of bargaining on cartel stability.
  - Simulate a merger between cartel members and assess market outcomes & cartel's stability.

Emprical Model

- Vertical chain model with three (3) players:
  1. Upstream producers
  2. Downstream retailers
  3. Final consumers
- Upstream cartel members choose whether to participate in the cartel and set their list prices based on the decision.
- Downstream retailers compete in price and can be one of the two types:
  - "*negotiating*" retailers → negotiate over list prices.
  - "*price-taking*" retailers → buy at the announced list price.
- Final consumers treat canned tuna as a differentiated product and make their purchases.
- Cost of getting busted by the antitrust authority for the cartel members→ dynamic incentives.
- Bargaining between cartel members and retailers affects:
  - Consumers' welfare.
  - Retailers' profits.
  - Cartel's profits.

Market Setup

- 3 firms controlling $\sim 80\%$ of the market.
  - StarKist (SK), Chicken of the Sea (CoS) and Bumble Bee (BB).
- 2015 merger agreement submitted to DOJ by CoS and BB. Antitrust investigation begins.
- By 2018 SK and BB have pleaded guilty for price fixing between 2011-2013.
- "*Customer negotiations were tailored, resulting in different pricing in each market depending on each customer's individual ability to resist the unlawfully inflated prices.*" Associated Wholesale Grocers, Inc. v. Bumble Bee Foods, LLC (In re Packaged Seafood Prods. Antitrust Litig.) (2021).

Data

- Nielsen data set
  - P and Q from 29537 stores (83 retailers) between 2006-2018.
  - Product Characteristics.
  - Household characteristics at the county level.
- Input prices (raw tuna).

Reduced Form Evidence

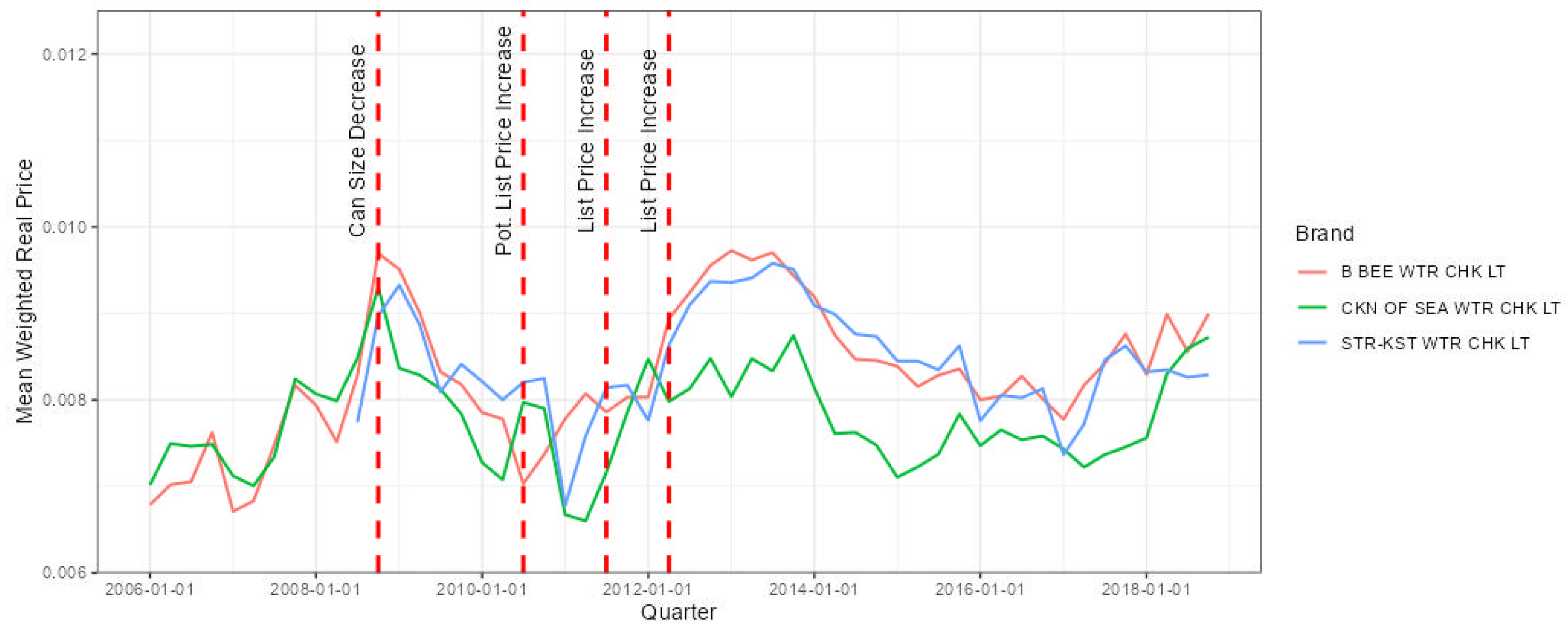

Figure 1: Real retail prices of the cartel members' most sold products

- StarKist and Bumble Bee pleaded guilty for price fixing for the period 2011-2013.
- In the damage claim cases retailers request damages for a larger period including the 2008 and 2010 price increases.
- There is a correlation between the size of the retailer and the level of the retail price.

Table 1: Price Regressions with the number of stores

Dependent Variable:	price	
Model:	(1)	(2)
Variables		
lag price	0.8243***	0.8230***
	(0.0091)	(0.0092)
n_stores	-1.28×10^{-5}***	
	(1.88×10^{-6})	
bin(1000,10000]		-0.0404***
		(0.0046)
Fixed-effects		
upc	Yes	Yes
quarter	Yes	Yes
Fit statistics		
Observations	158,974	158,974
R^2	0.97230	0.97232
Within R^2	0.65545	0.65570

Clustered (quarter) standard-errors in parentheses
*Signif. Codes: ***: 0.01, **: 0.05, *: 0.1*

- Retailers with a number of stores greater than 1000, have a lower retail price.
- I use this insight to separate the retailers in the data as *price-taking* and *negotiating* retailers.
- This outcome can be driven by three forces:
  - Asymmetry in the demand for canned tuna between "negotiating" and "price-taking" retailers.
  - The marginal cost of the "negotiating" vs the "price-taking" retailers.
  - The bargaining power of the "negotiating" retailers.
- The empirical model is required to disentangle the effect of each force on the final outcome.

Further Steps

- Estimation of the empirical model for the different possible cartel periods (in progress).
- Perform the counterfactual exercises.