

# **An Overview of Conditional Pricing Practices**

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# Outline

- What are Loyalty Contracts?
- Single-Product Loyalty Contracts
- Multi-product Loyalty Contracts
- Legal Tests

# What are Loyalty Contracts?

- Standard pricing:  $P_{ij}(q_{ij})$ , where  $i$  refers to firm and  $j$  product
- Loyalty contract:  $P_{ij}(q_{ij}, q_{-ij}, q_{-ik}, \dots)$  (“references rivals”)
  - Special cases:
    - Single product share-based discounts  $P_{ij}(q_{ij}, s_{ij})$
    - Multiple product share-based discounts  $P_{ij}(q_{ij}, s_{ij}, s_{ik}, \dots)$
    - Exclusive contracts
- ***Key question:*** *How does allowing pricing that conditions on rivals’ sales affect market outcomes and welfare?*

# *Case 1: LePage's v. 3M (2004)*

## ***Background***

- 3M had high market share in the market for branded tape products while LePage was the main player in the private label market.
- 3M decided to enter the private label market and targeted buyers (retailers) who had been buyers of private label tape products including many of LePage's customers.

## ***Pricing Practices***

- 3M offered discounts across six product categories based on various category targets, where many of the discounts depended on meeting targets across all six categories.

## ***Ruling***

- LePage alleged that 3M's conduct was exclusionary and the courts ruled in favor of LePage even though there was no finding that 3M's pricing was below cost.

# *Case 2: Cascade Health Solutions v. PeaceHealth (2008)*

## *Background*

- McKenzie and PeaceHealth were the only two providers of hospital care in Lane County, Oregon.
- McKenzie provided primary and secondary care but not tertiary care in its single hospital, while PeaceHealth offered all three across its hospitals.
- PeaceHealth had a 75% market share in primary and secondary care.

## *Pricing Practices*

- PeaceHealth offered significant discounts on tertiary care to insurance companies that purchased all hospital services, including primary and secondary, solely from PeaceHealth.

## *Ruling*

- McKenzie alleged that PeaceHealth's conduct was exclusionary and the courts ruled in favor of PeaceHealth based on a price cost test (like in Brooke Group).

# *Case 3: ZF Meritor, LLC v. Eaton Corp. (2013)*

## *Background*

- Eaton was the leader in heavy duty truck transmissions with over 80% market share, while ZF Meritor was a rival seller that had recently introduced a product innovation.
- Four buyers who were the manufacturers of heavy duty trucks.

## *Pricing Practices*

- Eaton entered into long term contracts with each of the truck manufacturers that: i) offered rebates that depended on high minimum percentage purchases from Eaton; ii) required preferences for Eaton products in data book listings; and iii) included a clause that required Eaton products to be priced lower.

## *Ruling*

- ZF Meritor alleged that Eaton had established de facto exclusive dealing contracts. The courts agreed that the contracts should be analyzed in terms of de facto exclusive dealing but ruled plaintiff lacked standing because it had exited the market.

# *Case 4: Eisai v. Sanofi-Aventis (2014)*

## ***Background***

- Sanofi-Aventis manufactures, sells, and distributes, Lovenox, which is a low molecular weight (LMWH) anticoagulant drug with a market share over 90%.
- Eisai has exclusive distribution rights to a competing drug, Fragmin, manufactured by Pfizer.

## ***Pricing Practices***

- Sanofi-Aventis offered a discount of up to 30% if the customer purchased at least 90% of its LMWH anticoagulant purchases from Sanofi-Aventis and the discount fell to 1% if the Sanofi-Aventis share fell below 75%.

## ***Ruling***

- Eisai argued that the discount scheme employed by Sanofi-Aventis amounted to de facto exclusive dealing, but the courts dismissed the case using a price-cost test (Brooke Group).

# Single-product Loyalty Contracts

**Loyalty contracts can arise for many reasons. They may:**

- Encourage efficient investments
- Aid in price discrimination
- Extract rents out of future entrants
- Intensify (or diminish) the intensity of contracting competition
- Facilitate a reduction in downstream competition
- Reduce downstream competition by foreclosing access to inputs (“raising rival’s costs”)
- Reduce competition by foreclosing access to buyers

## *Encouraging efficient investments*

- ***Buyer exclusivity protects seller investments from free-riding*** (Marvel, Masten-Snyder, Segal-Whinston)
- ***Buyer exclusivity encourages focus on seller*** (Bork, Areeda-Kaplow, Segal-Whinston, Bernheim-Whinston)

## *Aiding price discrimination*

*Majumdar-Shaffer, Calzolari-Denicolo*

- Exclusives and loyalty terms can arise as screening devices – high demand buyers find restrictions on using/selling other products more costly than low demand buyers
- Often bad for buyers, but may increase efficiency.

## *Extracting rents out of future entrants*

*Aghion-Bolton (also Marx-Shaffer)*

- Incumbent and buyer sign stipulated damage contract (= disloyalty tax) to induce reduction in rival's price
- Buyer may share in the rent extraction, but causes inefficient reduction in use of rival's good

# *Intensifying (or diminishing) intensity of contracting competition*

## *Linear pricing models*

*Mathewson-Winter (also Klein-Murphy/Zenger):*

- *Symmetric firms*: exclusives intensify competition (firms earn zero). Buyer may be better off.
- *Asymmetric firms*: with competition for exclusives can get exclusion *and* a higher price, making buyer worse off and reducing aggregate surplus

# *Non-linear pricing models with complete information*

*Bernheim-Whinston/O'Brien-Shafer*

- When non-linear pricing is available, exclusives are unnecessary to extract surplus
- Best equilibrium for firms is efficient and unaffected by banning exclusives
- Best equilibrium for buyer is where firms compete in offering only exclusives, but is inefficient

# *Non-linear pricing with unobserved buyer characteristics*

*Calzolari-Denicolo*

- In general, much like the linear pricing case, exclusives intensify competition when firms are symmetric, but reduce it when one firm is dominant.
- However, even with symmetry, allowing share contracts raises prices relative to when only exclusives are possible
- Again, consumer and aggregate welfare effects may not go in the same direction

# *Facilitating a reduction in downstream competition (“cartel ringmaster”)*

*Krattenmaker-Salop, Inderst-Shaffer, Asker-Bar Isaac*

- Downstream competitors may agree to loyalty contracts with an upstream firm that diminish downstream competition by:
  - Charging a high wholesale prices (to raise downstream prices)
  - Limiting access to other suppliers to block a source of lower cost supply

# *Reducing competition by foreclosing access to inputs (raising rivals' costs)*

*Krattenmaker-Salop, Hart-Tirole/Whinston, Lee/Sinkinson*

- Vertical structure profits may be maximized by restricting access by downstream firms to critical inputs and loyalty provisions may be necessary to achieve this (re: potato chip story)
  - *Hart-Tirole*: upstream exclusive prevents over-supply due to opportunism (share contracts would also work)
  - *Lee/Sinkinson*: upstream exclusives create downstream differentiation

# *Reducing competition by foreclosing access to buyers*

*Rasmusen et al, Segal-Whinston, Bernheim-Whinston, Fumagalli-Motta, Simpson-Wickelgren*

- Loyalty contracts with buyers can deprive a rival of scale, reducing the rival's competitiveness
- ***Key question:*** Why would a buyer be willing to sign such a contract?

***Rasmussen et al/Segal-Whinston answer:***

Externalities exist across buyers because preserving competition is a “public good”. The profit to be earned from monopolizing one buyer funds the payments made to other buyers.

***Bernheim-Whinston:*** Similar effects can arise even without a first-mover advantage – i.e., when the excluded rival is able to compete for contracts.

***With competing downstream buyers (e.g., “retailers”):***

- Exclusion may be harder because an upstream firm may only need one downstream partner to reach consumers (*Fumagalli-Motta*)
- Exclusion may be easier because downstream firms may be relatively unaffected by upstream price increases due to pass-through (*Simpson-Wickelgren*)

# *Empirical Evidence*

- ***Marvel/Grossman-Hart***: discussions of insurance industry suggesting exclusives are employed to encourage investment/promotion
- ***Heide-Dutta-Bergen***: survey evidence in electronics industry suggesting that exclusives are in response to free-riding concerns
- ***Marin-Sicotte***: Event study analysis showing reduced customer stock values in response to court cases and legislative events allowing (legal) ocean shipping cartels to employ exclusive dealing contracts with customers.
- ***Landeo-Spier***: experimental evidence on naked exclusion
- ***Lee/Sinkinson***: Structural estimations of videogame/mobile phone markets

# Multi-product Loyalty Contracts

*Multi-product loyalty contracts, if fully unconstrained, can frequently mimic tying (Greenlee, Reitman, and Sibley (2008)).*

## *A Simple Example*

- Firm 1 sells two product, X and Y, where X is a monopoly product and Y is also produced by rivals.
- Suppose that if tying is legal, firm 1 uses a tie-in sale where a buyer of X is required to purchase all units of Y from firm 1, where prices are  $P_X^*$ ,  $P_Y^*$ .
- Now suppose tying is not allowed but there are no constraints on the use of multi-product loyalty contracts.
- Let  $s_i$  be  $i$ 's share of units of Y purchased from 1. If consumers face a high cost of not purchasing any units of X, then the monopolist can mimic the tying outcome by charging a prohibitive price for X if  $s_i < 1$ ,  $P_X = P_X^*$  if  $s_i = 1$ , and  $P_Y = P_Y^*$ .

*... So motivation for multi-product loyalty contracts should include most standard motivations for tying and, given there are many, this should probably capture most (maybe all) non-tying motivations.*

## ***Standard Tying Motivations***

- Efficiency
- Price Discrimination
- Hold-up Theories
- Extending/Leveraging Market Power
- Preserving/Strengthening Market Power
- Other Strategic Motivations

# *Efficiencies*

- ***There are many reasons tying/bundling can improve efficiency.***
  - Reduced production and distribution costs (Bork (1978), Evans and Salinger (2005)).
  - Economizing on search and sorting costs (Kenney and Klein (1983)).
  - Pricing efficiencies such as reducing the Cournot effect (Nalebuff (2001)).
  - Eliminating inefficiencies due to variable proportions (Malella and Nahata (1980), Carlton and Waldman (2010)).
- ***And it would seem that most of these would apply to multi-product loyalty contracts.***
  - Although in some cases, such as reduced production and distribution costs as a result of economies of scope, the need to reference rivals is not obvious.
  - But in some cases, such as eliminating variable proportions inefficiencies, the need to reference rivals seems clearer.

# *Price Discrimination*

- ***Tying/bundling can improve price discrimination in two distinct ways.***
  - In Stigler (1968) bundling reduces consumer heterogeneity when there is a negative correlation of valuations.
  - Papers such as McAfee, McMillan and Whinston (1989) show this is not a necessary condition for this argument to apply.
  - And there is the classic argument of metered sales (see Klein (1993) and Chen and Ross (1993) for discussions of this argument in the aftermarket context).
- ***Multi-product loyalty contracts that reference rivals are consistent with the second rationale but maybe not the first.***
  - The argument concerning making valuations more homogeneous typically assumes all products are monopolized (but maybe there is a variant where this is not the case).
  - Metered sales argument only requires monopoly on one product, so referencing rivals is consistent with this argument.

## *Hold-up Theories*

- Aftermarket cases represent a type of tying in that an aftermarket product, such as maintenance, is tied to the sale of a primary product such as the machine that requires maintenance.
- Many aftermarket theories are standard theories of tying applied to aftermarkets such as metered sales arguments and input substitution arguments.
- But there is a class of theories that only apply to aftermarkets that are variants of a hold-up argument (Borenstein et al (1995)).
  - Buyers purchase the primary good at the beginning of the game.
  - Tying the aftermarket product allows the primary good producer to increase profits because of consumer lock-in.
- Unclear whether these arguments apply to multi-product loyalty contracts given the timing assumptions.

## *Leveraging/Extending Market Power*

- The Chicago School argument is that tying can never profitably be employed to extend/leverage market power (Director and Levi (1956), Bowman (1957), Posner (1976), Bork (1978)).
  - There is only one monopoly profit and extending the monopoly to a second market will not increase profitability.
  - A standard example is the profitability of a right shoe monopolist versus the profitability of a monopolist of pairs of shoes.
- Whinston (1990) explores the validity/robustness of this argument in a series of related one period settings.
  - The Chicago School argument is valid when the monopoly good is “essential.”
  - But if the monopoly good is not essential, such as in the case of independent products (see also Nalebuff (2004)) or a market for the tied good by itself, then extending market power can be profitable.
  - Carlton and Waldman (2012) show that with multiple periods extending market power can be profitable even with an essential monopoly good.
- And these arguments should apply to multi-product loyalty contracts.

# *Preserving/Strengthening Existing Market Power*

- The Chicago School argument focused on whether it is profitable to extend/leverage market power, but some papers have identified setting in which the tie/bundle preserves or strengthens existing market power.
- Whinston (1990) considers a setting in which there is a competitively supplied inferior alternative to the monopoly product.
  - In this case tying can serve to weaken the constraint on pricing created by the inferior alternative.
- Carlton and Waldman (2002) consider two period models in which there is potential entry in the initial monopolized market in period 2.
  - In their analysis tying stops entry of a superior complementary good in period 1 which, in turn, deters entry into the monopoly market in period 2.
- And again these arguments should apply to multi-product loyalty contracts.

## *Other Strategic Motivations*

- Tying can be used as a product differentiation device (Carbajo, De Meza, and Seidman (1990), Chen (1997)).
- An incumbent ties in order to increase the probability of a subsequent monopoly position when there is no initial monopoly product (Choi and Stefanadis (2001)).
  - Complementary goods with R&D expenditures for each good.
  - The incumbent ties, reducing R&D expenditures of rivals, resulting in an increased probability the incumbent acquires a monopoly position in at least one product.
- Tying a product (that may not even be used by consumers) in order to shift rents (Carlton, Gans, and Waldman (2010)).
- And again these arguments should apply to multi-product loyalty contracts.

## *Next Steps*

- More Formal Theoretical Analyses
  - Although multi-product loyalty contracts can sometimes mimic tying as shown in Greenlee, Reitman, and Sibley (2008), further theoretical analyses to flesh out the similarities and differences is warranted.
- More Empirical Work
  - There is some empirical working looking at the effects of tying such as Crawford and Yurukoglu (2012) and Ho, Ho, and Mortimer (2012a, 2012b).
  - But there are few studies and they focus on a narrow set of industries/setting.
  - And there is very little on multi-product loyalty contracts, so clearly more empirical investigation is needed.
- And more attention should be paid to “why” multi-product loyalty contracts if the goal is mimicking tying.

# Legal Tests

## *Key concerns:*

- *Preventing anticompetitive actions that reduce (consumer?) welfare*
- *Reducing frivolous litigation that is costly and deters pro-competitive behaviors*

## *Two main current approaches:*

- Fact-specific rule-of-reason investigation of likely harms and benefits
- Price-cost test as safe-harbor screen
  - By analogy with predatory pricing

## *Do common justifications for price-cost tests for predation apply here?*

- “Need to reduce frivolous litigation”
- “Firms need to have a bright line”
- “Firms rarely have reasons to price below MC, and its hard to identify above-MC predation (akin to price regulation)”
- “When  $P > MC$ , forcing a higher price sacrifices short-run efficiency for speculative long-run gain”
- “If  $P > MC$ , an ‘equally efficient competitor’ can make sales”
- “If  $P > MC$ , a firm whose presence is efficient can make sales”

*Also important to ask what a structured rule of reason should look like:*

- Are there some theories of possible harm that we don't think the law should investigate?
- What are the elements/burdens for establishing harms and pro-competitive effects? (Should there be safe harbors other than price-cost tests?)