# An Overview of Conditional Pricing Practices

## Michael Waldman and Michael Whinston

# 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: $P_{ij}(q_{ij}, q_{-ij}, q_{-ik})$

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

Background

- Eaton was the leader in heavy duty truck transmissions with ov[er] 80% market share, while ZF Meritor was a rival seller that had recently introduced a product innovation.

-

# Background

- Sanofi-Aventis manufactures, sells, and distributes Lovenox,

# 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 inputs ("raising rival's costs")

- Reduce competition by foreclosing access to buyers

# Encouraging efficient investments

- Buyer exclusivity protects seller investments from free-riding (Marvel, Master-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)*

•

# Intensifying (or diminishing) intensity of contracting competition

## Linear pricing models

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

# 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?

# 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

# 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 not obvious.
  - But in some cases, such as eliminating variable proportions inefficiencies, the need to reference rivals seems clearer.

- 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 -

- 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 aftermarket that are variants of a hold-

•

- 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

# 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 multiproduct 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?)

DOJ/FTC Conditional Pricing Practices Workshop