Chain-Store Competition

Customized vs Uniform Store-Level Pricing

by

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Introduction

- Retail competition increasingly focused on battle between large chains with a resultant squeeze on independents
- Twin benefits open to big chains:
  - (a) cost savings and marketing clout of a large purchaser
  - (b) ability to tailor offers across local markets served
- *Micro-marketing* refers to the customisation of marketing mix variables to store-level or individual shopper level
- Sophisticated micro-marketing made possible by IT and data management developments

Micro-marketing possibilities

- Key idea is to segment different groups of consumers (or even individuals) and provide tailored retail propositions
- Examples:
  - Zone pricing – clustering stores according to general price bands
  - Store-by-store customisation of individual product prices and promotions
  - Store-by-store customisation of product range, category depth, retail services, amenities, opening hours, store ambience, store location, and store size/type
  - Individual consumer targeting – customised vouchers (e.g. based on store loyalty card information)

Advantages/disadvantages

- Retailer benefits:
  - Exploits different willingness to pay across consumer groups
  - Exploits "scarcity power" when competition is lacking
  - Facilitates meeting local/immediate competition head on
  - Flexible to different cost conditions
- Possible concerns:
  - May raise costs
  - Negative consumer sentiment ("consumer backlash")
  - Arbitrage
  - May trigger more aggressive competition

Key questions

- Our focus is on pricing strategies in retail oligopoly and the strategic effects of chain-store pricing policy choices
- Four key questions:
  - What is the profit impact of customising store-level prices compared to uniform (national) pricing?
  - What (if any) competitive conditions allow for uniform pricing to be individually or jointly preferable for retailers?
  - Can a mix of different pricing positions by competing chains (some local, some national) be sustainable?
  - How is consumer welfare affected by retailers' decisions to price locally or nationally?

Motivating example: Price flexing by UK supermarkets

- "Local price flexing": adjusting prices at store-level according to degree of local competition
- Price flexing deemed anti-competitive by UK Competition Commission in 2000 …but no remedy offered
- Of the 15 main supermarket chains, 7 used local pricing, 8 used national pricing in 2000
- Subsequent change in market with all leading "one stop shop" chains using national pricing by 2004
- Practice investigated in context of mergers (e.g. Coop/Somerfield 2008) and local predatory pricing (CC 2008)

Market shares/local concentration (1999)

Leading supermarket chains	*National Market Shares*		*Local Concentration*	
	All grocery stores (%)	*Grocery stores >1,400 sq m (%)*	*% stores in local monopoly (10/15-minute drive time)*	*% stores in local duopoly (10/15-minute drive time)*
Tesco	**23.0**	**28.5**	**6.0**	**10.3**
Sainsbury	**18.7**	**24.8**	**0.5**	**4.1**
Asda	**12.2**	**16.8**	**0.0**	**3.1**
Safeway	**11.5**	**13.8**	**9.2**	**9.8**
Morrison	**3.9**	**5.4**	**0.0**	**4.2**
Total	**69.2**	**89.3**	**-**	**-**

Nature and Extent of Price Flexing (1999)

Store Fascia	*Price-flexed products (%)*	*Average price range for price-flexed products (%)*	*Basket price range across stores (sales weighted) (%)*	*Identifiable store-level price bands (1=Uniform)*	*Factors influencing store-level pricing*
Tesco	**8.5**	**19.2**	**1.69**	**5**	**R/Y/E/D**
Sainsbury	**NA**	**NA**	**NA**	**2+**	**S/R/E**
Asda	**0**	**0**	**0**	**1**	**-**
Safeway	**59.5**	**4.3**	**1.09**	**3**	**M/E/D/S/R**
Morrison	**0**	**0**	**0**	**1**	**-**
Somerfield	**23.7**	**6.3**	**0.20**	**10**	**E/S/M**
Kwik Save	**2.3**	**9.8**	**0.79**	**3**	**D/M**

Notes:
* Based on a basket of up to 200 common products with prices collected from up to 60 stores for each party on January 28, 1999
† Store-level pricing factors identified by CC empirical analysis: R = regional effect (e.g. lower in North, higher in South); Y = local average income; E = local presence of EDLP retailer (Asda or Morrison); D = local presence of hard discount retailer (Aldi, Lidl or Netto); S = store size; M = local market share

Strategic Commitments

- By 2004 the "Big 4" UK supermarket chains were all making public commitments to uniform national pricing
- These commitments continue through to the present day
- Uniform pricing also operated by upmarket chains (like Waitrose) and hard discount chains (like Aldi and Lidl)
- Now it is mainly the convenience/smaller format supermarket chains that continue to operate price flexing on a geographic basis (e.g. Coop and Budgens)

Tesco Statement

"We [Tesco] understand that customers want low prices, but they also want fair prices. That is why we charge the same prices up and down the country. We sell our products on the basis of a national price list available for all to see on our website. Even in the few locations that are unable to support more than one supermarket, where we are 'the only supermarket in a town', we continue to operate on the basis of our national price list."

(http://www.tesco.com/talkingtesco/lowPrices/)

Asda Statement

"Asda pricing does not discriminate by geography, store size or level of affluence - we have one Asda price across the entire country. Our national pricing policy means that all our customers, no matter where they live, be it Elgin or Eastbourne, will pay the same low prices they deserve – always."

(Tony De Nunzio, President and CEO, Asda Stores Limited - www.advfn.com/news_Statement-re-Safeway-PLC_4628216.html)

Sainsbury's Statement

"Sainsbury's sets prices nationally by format and does not use price-flexing to exploit areas of higher or lower market share."

(http://www.competition-commission.org.uk/inquiries/ref2006/grocery/main_party_submissions.htm)

Morrisons Statement

"We have a long established value-based national pricing policy - which has operated in Morrisons stores since 1958 - with the same single price for every product in each store, wherever a store is located. We have no intention of changing this strategy. It is at the heart of what we do. There will be no price flexing in Morrisons stores."

(Bob Stott, Managing Director, Wm Morrison Supermarkets PLC - www.mmc.gov.uk/inquiries/completed/2003/safeway/pdf/morrisonnotes.pdf)

Specific Model

- Two chain-store retailers, A and B
- A and B operate in a country consisting of three geographically separate markets: one large/affluent and two smaller/less affluent markets
- Both retailers compete in large market
- Retailers each have a monopoly position in one of the small markets
- The firms are in symmetric positions regarding demand and costs
- Consumer preferences in each of the markets are represented by standard quadratic utility functions

Market characteristics

- The direct demand functions are:

$$q_{Ai}(p_{Ai}, p_{Bi}) = (1 - \gamma - p_{Ai} + \gamma p_{Bi})/(1 - \gamma^2)$$

$$q_{Bi}(p_{Bi}, p_{Ai}) = (1 - \gamma - p_{Bi} + \gamma p_{Ai})/(1 - \gamma^2)$$

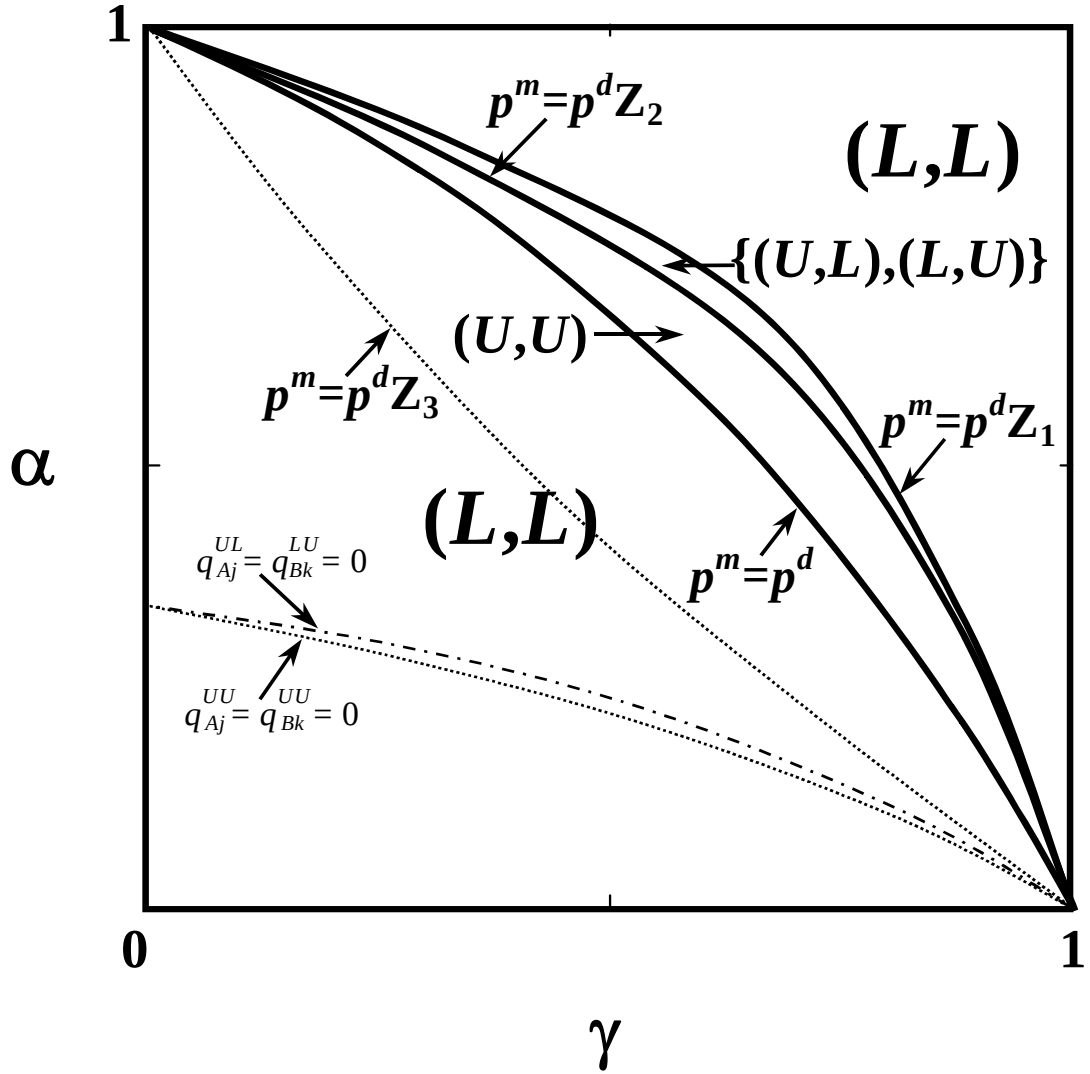
$$q_{Aj}(p_{Aj}) = \alpha - p_{Aj} \quad , \quad q_{Bk}(p_{Bk}) = \alpha - p_{Bk}$$

- $\alpha \in (0,1]$ is the demand intercept in the monopoly markets
- $\gamma \in [0,1)$ represents the degree of substitutability between the retailers' services
- Firms operate under zero unit and marginal costs
- Analysis modelled as a two-stage complete information game:
  Stage 1 – each retailer decides its pricing policy, *L* or *U* ;
  Stage 2 – firms simultaneously determine prices (à la Bertrand-Nash)

Individual preferences

- Four pricing-policy configurations to consider: (L,L), (U,U), (L,U) and (U,L)
- Each retailer will be indifferent between adopting L and U when local pricing outcomes are the same in both of its markets, i.e. when $p^m = p^d$, where $p^m = \alpha/2$ and $p^d = (1-\gamma)/(2-\gamma)$
- For $p^m < p^d$, each retailer strictly prefers local pricing
- For $p^m > p^d$, each retailer may strictly prefer uniform pricing as long as the price gap is not "too wide", otherwise local pricing may be preferred
- Different conditions exist which respectively support each of the four pricing policy configurations as equilibrium outcomes

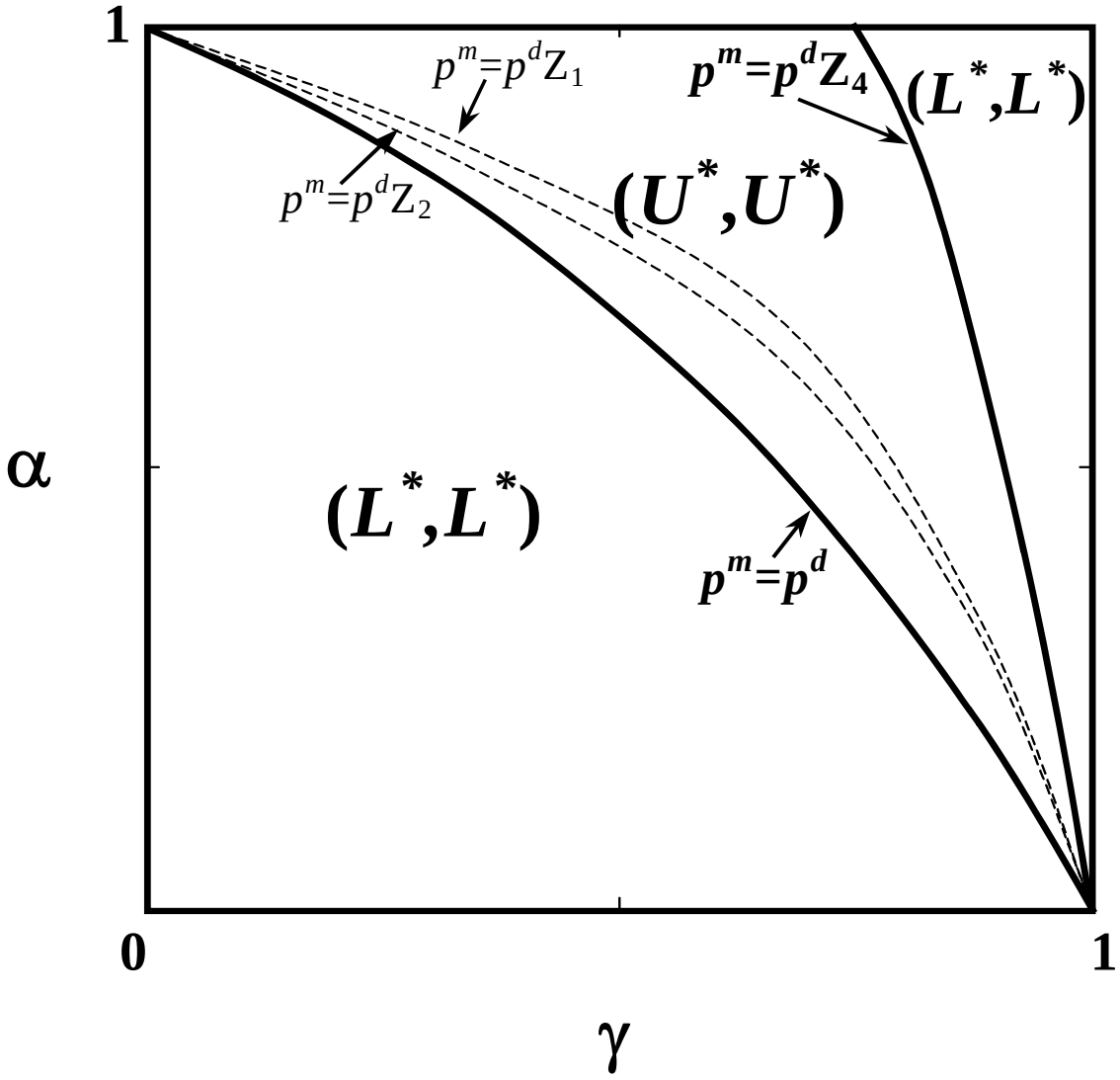
Figure 1 – Equilibrium pricing policy configurations



Joint preferences

- Comparison of joint profits under (L,L) and (U,U)
- "Semi collusion" – joint agreement over pricing policy but not individual prices – would allow for a greater range of market conditions supporting retailers choosing uniform pricing
- Prohibition of local discriminatory pricing would have same effects

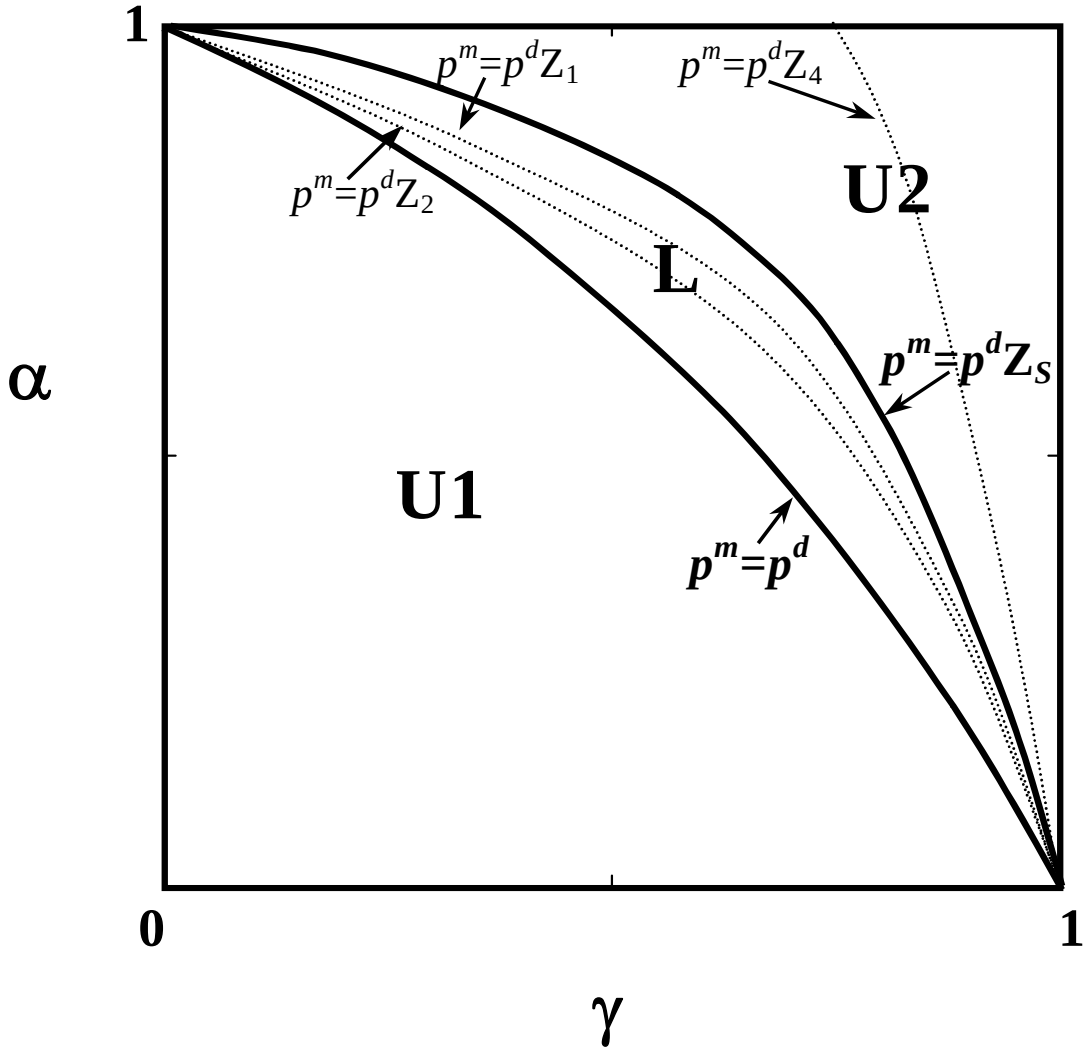
Figure 2 – Configurations under joint preferences



Consumer welfare

- Consumers in different markets will have divergent interests over the pricing policies adopted
- Overall impact examined in respect of aggregate consumer surplus, S
- For $p^m < p^d$, S is greater under uniform pricing
- For $p^m > p^d$, S is greater under local pricing as long as the price gap is not "too wide", otherwise uniform pricing offers the greater level
- Firms' preferences are not necessarily at odds with consumers' preferences

Figure 3 – Aggregate consumer preferences over pricing policy



Implications #1

- Strategic considerations may support the individual choice of uniform pricing
- …but requires credible commitment to soften competition
- Asymmetric situations may prevail (even with ostensibly symmetric firms)
- A mutual move to uniform pricing may benefit both retailers and consumers (i.e. a win-win situation can exist)
- Net welfare effects depend on the precise market circumstances

Implications #2

- Regardless of choice of local pricing or national pricing, average prices depend on average local concentration (not national concentration)
- Behavioural remedies (like banning price flexing) may be appropriate – but only in specific market circumstances where aggregate consumer welfare is otherwise harmed
- Structural/institutional remedies (like enforced store divestments/swaps or reducing planning restrictions) may be more effective – as they target the source of harmful effects, i.e. local monopolies

Implications #3

- The model does not capture two important dynamic considerations:
  - Would collusion be (more) likely to arise with firms adopting uniform pricing?
  - Would local pricing facilitate predatory behaviour to eliminate small rivals?
- More research needed to look at economic effects of combinations of discriminatory practices (e.g. price flexing + persistent below-cost selling of KVIs + individualised consumer offers)

General model #1

- Basic Scenario: Firms A and B with Markets 1 and 2

Market 1

A

Market 2

A **B**

Differentiated products

- Does firm A charge a different price in market 2, or the same price (with commitment)?
  - N.B. Model can be extended to three markets/ more players

General model #2

- Firm *A* sells in two independent markets, 1 and 2, while firm *B* sells in only one market, 2.
- Costs are the same in each market and marginal costs are constant, at a unit rate *c*.
- The demand functions are continuous and downward sloping: market 2: $q_i(p_i, p_j)$ with $|\partial q_i/\partial p_i| > \partial q_i/\partial p_j > 0$ and sufficient concavity for SOCs.
- Also, symmetry between *A* and *B*:

$$q_i(p_A, p_B) = q_j(p_B, p_A)$$

General model #3

- Local pricing: Firm A's maximisation

$$\frac{\partial \pi_1(p_1)}{\partial p_1} = \frac{\partial \pi_{A2}(p_{A2}, p_{B2})}{\partial p_{A2}} = 0 \qquad (1)$$

- Uniform pricing- **2 stage game**
  - *A* commits to uniform pricing
  - Price-setting stage

$$\frac{d\pi_A(p_A, p_A, p_{B2})}{dp_A} = \frac{\partial \pi_1(p_A)}{\partial p_A} + \frac{\partial \pi_{A2}(p_A, p_{B2})}{\partial p_A} = 0 \qquad (2)$$

- Uniform price will be between the local prices in the two markets

General model #4

- Uniform pricing will be unprofitable when

$$p_1^L < p_A^U < p_{A2}^L$$

- Uniform pricing could be profitable when

$$p_1^L > p_A^U > p_{A2}^L \qquad (3)$$

- Trivially, of course, it is equally profitable when all three are equal.
- Note that, under (3): $d\pi_{A2}(p_{A2}^L, p_{B2}^L)/dp_A > 0$

General model #5

Proposition 1.

(a) Existence: *In the scenario outlined above, there is a range of demand parameters for which there is some profit incentive for firm A to set a uniform price across the two markets rather than pricing markets separately.*

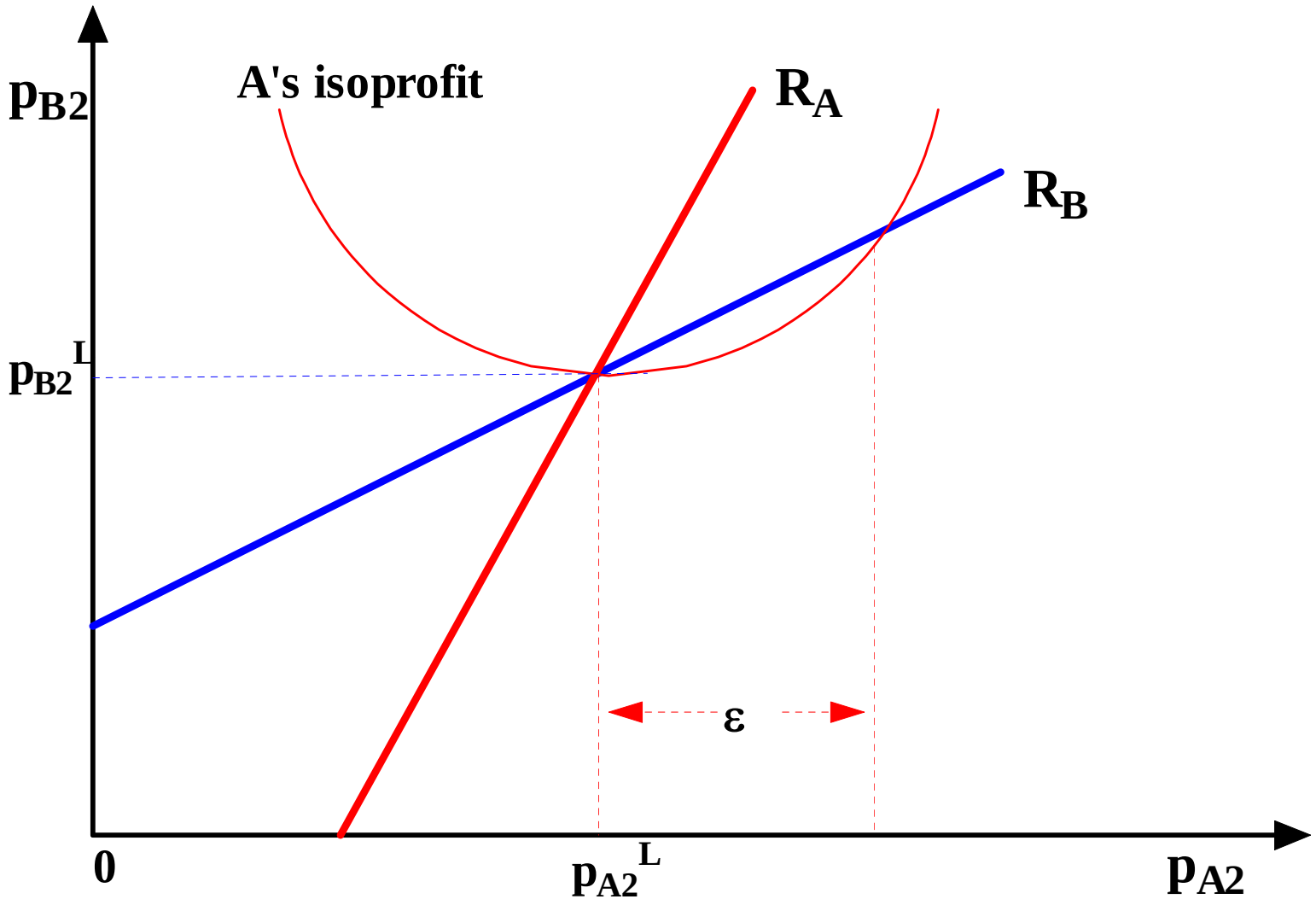
(b) Necessity*: The incentive arises when demand facing A is no less elastic in the duopoly market than in the monopoly market. The firms in market 2 must produce differentiated products.*

General model #6

Intuition for Proposition 1:

- By choosing a uniform pricing strategy, thereby raising price in market 2, firm *A* loses some potential profit in the monopolized market.
- Actions are strategic complements in market 2
- By being "soft" in setting a high price in the duopoly market, and as a result inducing firm *B* to set a higher price in market 2, *A* gains more profit in the duopoly market than it would do otherwise and hence can benefit in net terms, so long as losses in monopoly market small.

Strategic effect in market 2



General model #7

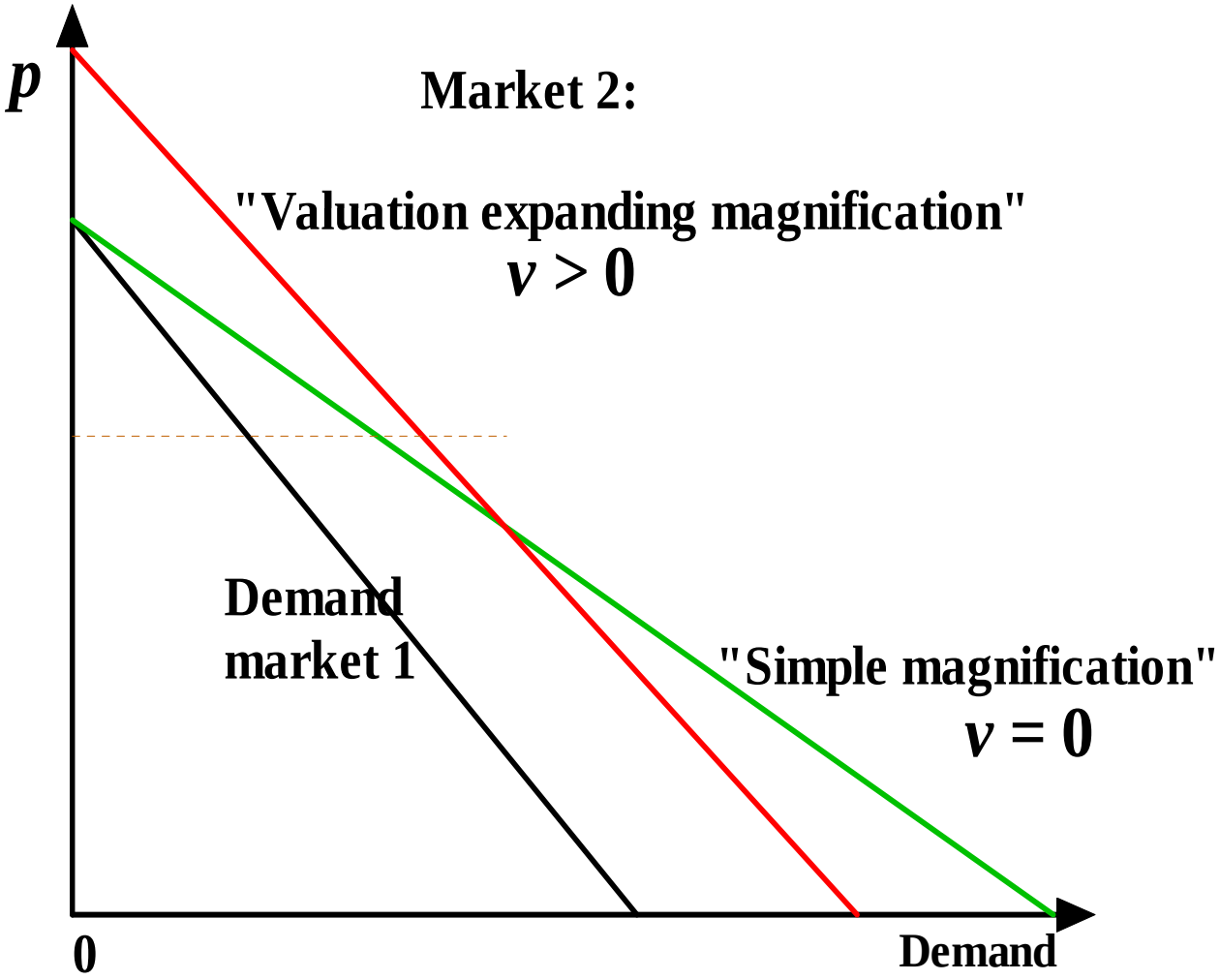
Proposition 2.

The range of demand parameters under which there is a (strict) incentive for uniform pricing does not include cases where market 2 is a "simple magnification" of market 1.

- "Simple magnification" definition:
  - If the distribution of willingness to pay in market 1 is $f(p)$, with support $[0, \bar{p}]$ then in market 2 it is $(1+\theta)f(p)$ with the same support. This implies that at any price, the industry demand elasticities are the same
- But uniform pricing can be profitable where market 2 is a "valuation expanding" magnification of market 1

Market Demand Characterisation: Simple vs Valuation Expanding Magnification

- "Simple magnification" means no incentive (in this setting)
- "Valuation expanding" magnification gives incentive for uniform pricing to be profitable



General model #8

Insights offered:

- Necessity result – the local price in the monopoly market must be greater than the local price in the duopoly market
- Existence result – uniform pricing more profitable when strategic competition dampening effect of a uniform pricing commitment outweighs monopoly profit loss
- Local price gap needs to be close – otherwise monopoly profit loss too great and duopoly profit increase goes mostly to the rival
- Valuation expansion magnification needed to support uniform pricing – where willingness to pay is higher for at least for some consumers in the (richer) duopoly market compared to the (poorer) monopoly market; allowing for the local price gap to be close

THANK YOU!

ANY QUESTIONS?