Bundling and Economies of Scope

Ultrabroadband

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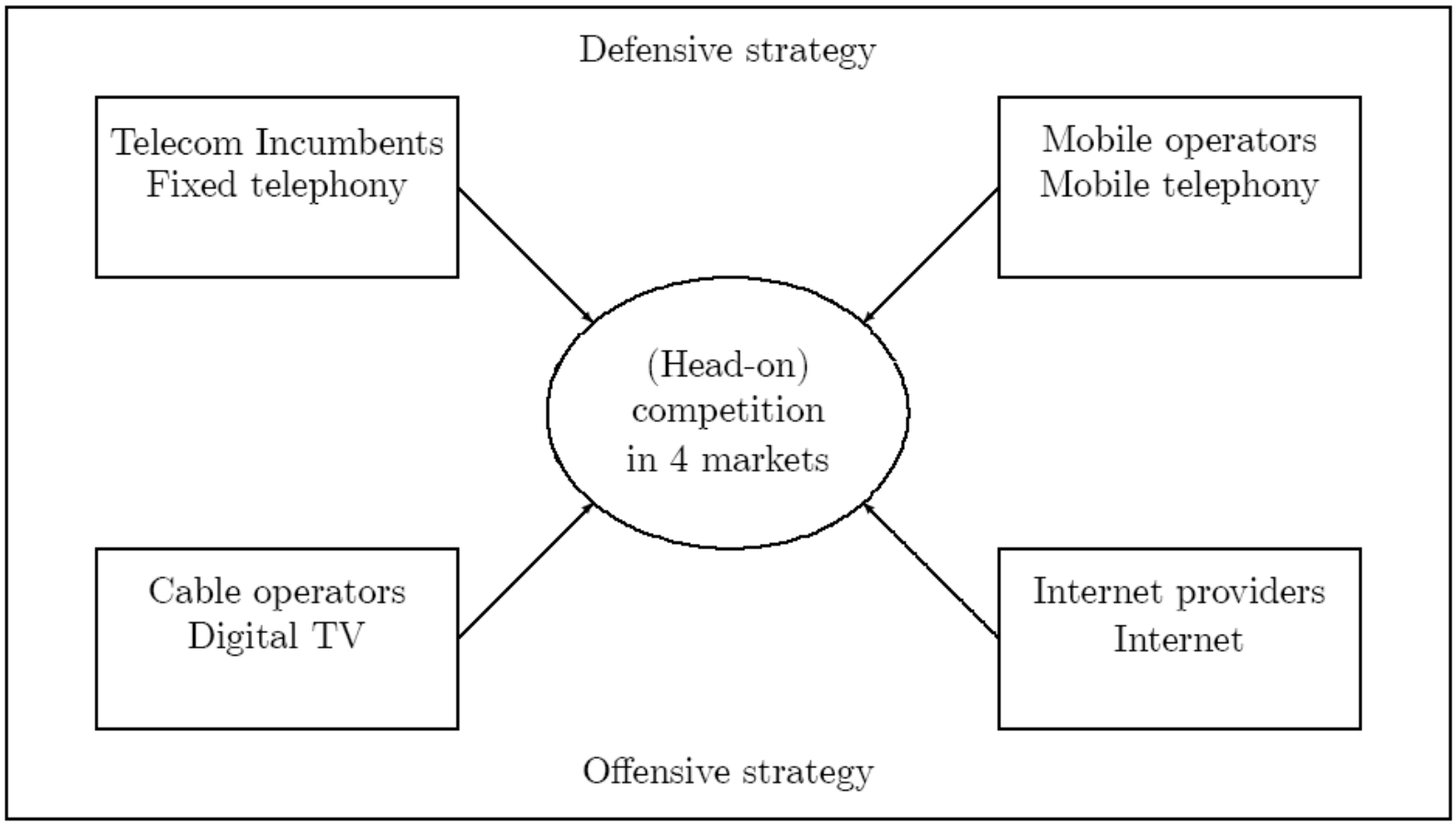
Presentation's aim

- The digital convergence and its effects are now increasing
- Market players are more and more induced to undertake bundling strategies
  - How bundling impacts competition?
    - Which are the factors that induce firms to undertake bundling?
    - What are the consequences for pricing, firms' profits and consumers?

Bundling market overview

- Bundling as an offensive strategy
  - Cable operators enjoyed regulatory and technological advantages (1996 Telecom Act)
  - Internet providers use bundling as a way to access market and to win market share (Free, Fastweb)
- Bundling as a defensive strategy
  - Incumbents want to protect their core market and to increase consumers' loyalty
  - Mobile operators undertake bundling as a response to quadruple-play
- Such undertakings push actors into head-on competition in several markets

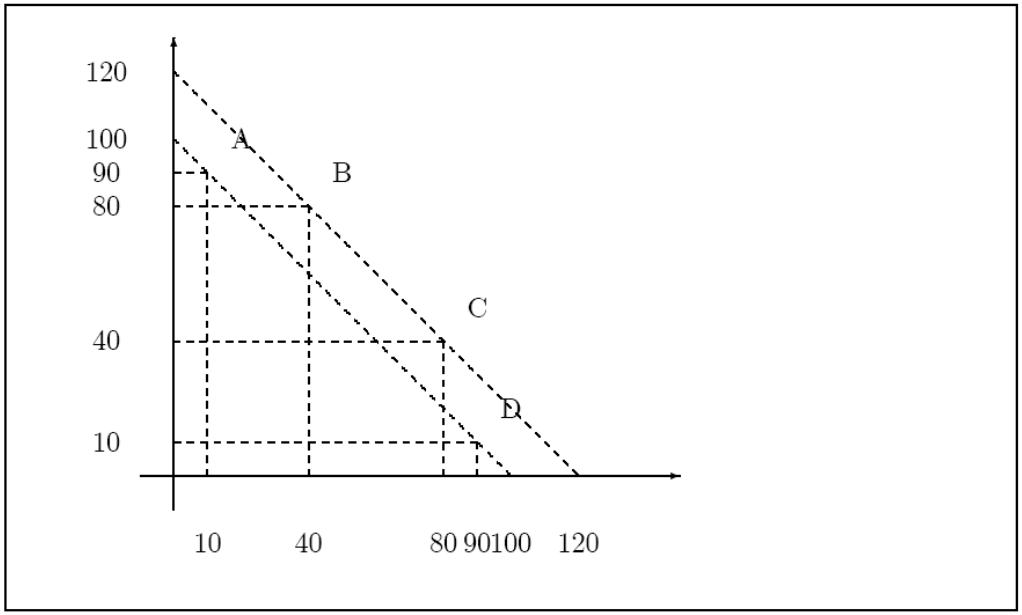
Convergence toward quadruple-play



Economies of scope

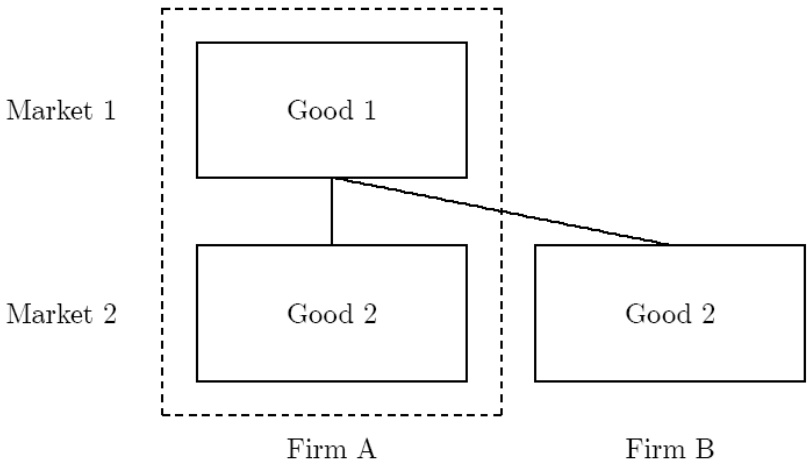
- Bundling telephony internet and television reduces advertising and marketing costs
- Orange's re-branding
- Crampes and Hollander (2006), bundling has made sounds, pictures and data perfect substitute that can be injected into the "electronic pipes".

Price discrimination in Monopoly



- Independent selling $p_1 = p_2 = 80$, $\pi = 320$ and $cs = 20$
- Pure bundling $p_b = 100$, $\pi = 400$ and $cs = 40$
- Mixed bundling $p_1 = p_2 = 90$ and $p_b = 120$, $\pi = 420$ and $cs = 0$

Anti-competitive rationales



- Bundling can be used for anti-competitive ends
- Bundling by firms with market power is subject to regulation

Bundling under Hotelling

- Extension of Matutes and Regibeau (1992)
- Duopoly where two firms, denoted i ($i = A, B$), are competing
- Both firms produce the two components, denoted j($j = 1,2$), of a system
- Firms are differentiated, a la Hotelling
- Consumers are represented in a unit square
- Consumers can chose between four different systems (AA, AB, BA and BB)

Bundling under Hotelling

- Market coverage varies with η
- η is the consumers' price reservation
- Mixed bundling creates economies of scope $c \leq c_b < 2c$.
- θ_j is consumer's location for good j between firm A and firm B
- λ is the parameter of differentiation

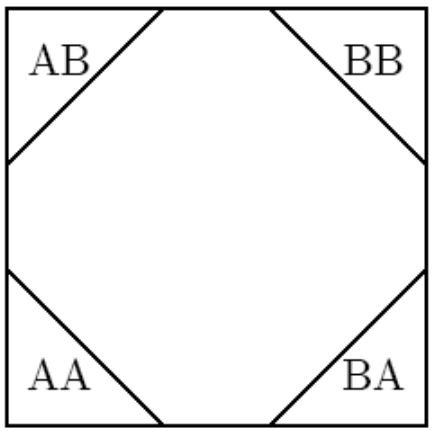
Independent selling

- A consumer purchases the system AA rather than the system AB if
  - $p_{A1} + p_{A2} + \lambda\theta_1 + \lambda\theta_2 \geq p_{B1} + p_{A2} + \lambda(1 - \theta_1) + \lambda\theta_2$
- She purchases the system AA rather than BA if
  - $p_{A1} + p_{A2} + \lambda_1\theta_1 + \lambda_2\theta_2 \geq p_{A1} + p_{B2} + \lambda\theta_1 + \lambda(1 - \theta_2)$
- Profits and prices equilibrium are

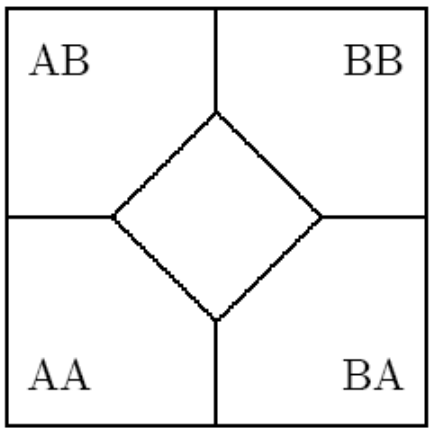
$$\begin{aligned} p_{ij}^{\star} &= \lambda + c, \\ \pi_i^{\star} &= \lambda. \end{aligned} \tag{1}$$

Independent selling

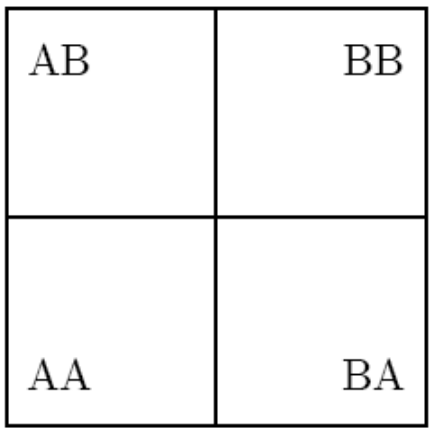
Figure 2



Local Monopoly



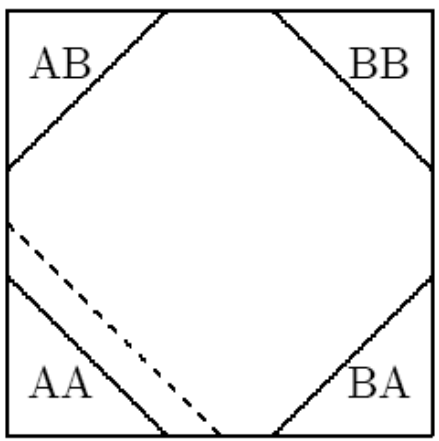
Partial Competition



Full Competition
and Limit Pricing

Incentive to use mixed bundling

Figure 3



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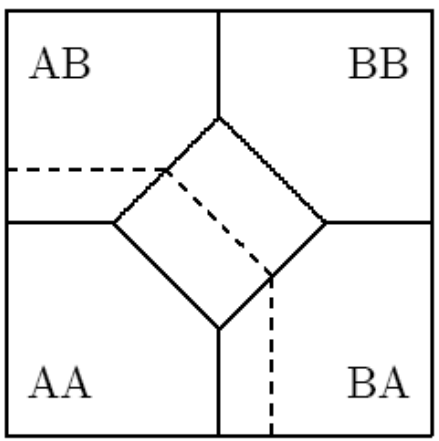
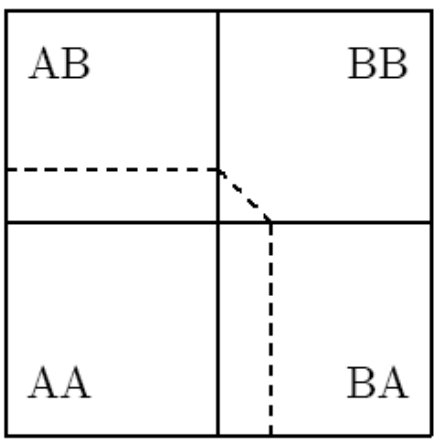


Partial Competition



Full Competition
and Limit Pricing

Incentive to use mixed bundling

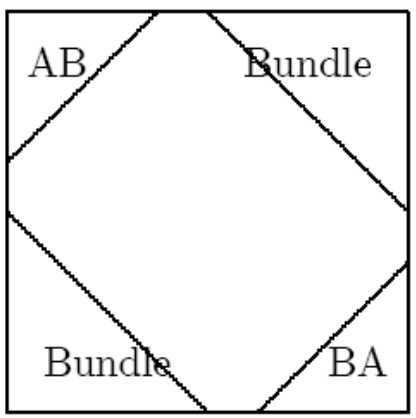
Proposition

A firm's profit always increase if it unilaterally targets a bundling price to consumers who one-stop shop such that $p_{ib} \leq p_{i1} + p_{i2}$.

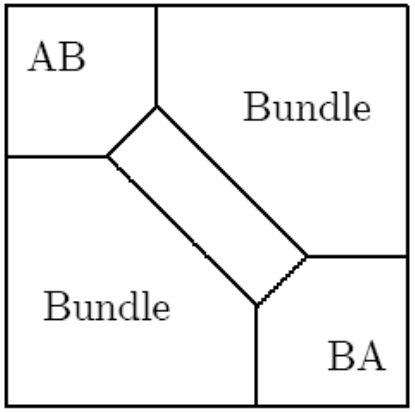
- Firm i targets a bundling price to consumers who one-stop shop
- Where $p_{ib} = p_{i1} + p_{i2} - \varepsilon$ and ε (> 0) is small
- Firm i gains, $(p - \varepsilon - c)\left[\frac{1}{2\lambda}\varepsilon\right] + \left[\frac{1}{8\lambda^2}\varepsilon^2\right](2p - \varepsilon - 2c)$.
- Firm i loses $\frac{1}{2}\ \varepsilon\left[\frac{1}{2} + \frac{1}{2\lambda}\varepsilon\right] - \frac{1}{4}\varepsilon$.
- Using (1) $\left(\frac{1}{8\lambda^2}\varepsilon\right)(2\lambda - \varepsilon) + \frac{1}{4} > 0$, which is true for ε small
- The Nash equilibrium is the one of mixed bundling

Mixed bundling

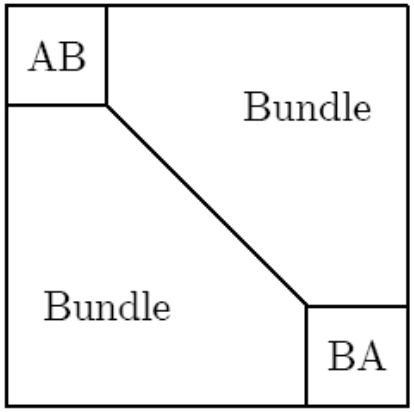
Figure 4



Local Monopoly



Partial Competition



Full Competition
and Limit Pricing

Impact of bundling and economies of scope

Proposition

Economies of scope act to reduce (increase) firms' profits when the market is completely (partially) covered.

Proposition

Economies of scope tend to increase consumer surplus.

Intuition (full market coverage)

- Mixed bundling acts to create more head-on competition
- It pushes the prices charged for the bundles down
- One-stop shoppers increase at the expense of two-stop shoppers
- The discount is increasing with the economies of scope
- The economies of scope act to reduce firms' profits
- Firms are in a prisoner's dilemma situation $\pi_A^{Ind} > \pi_A^{Bund}$

Intuition (partial market coverage)

- The discount continues to increase with the economies of scope
- Bundling and economies of scope help firms to get more demand
- When the economies of scope are large bundling increases firms' profits $\pi_A^{Bund} > \pi_A^{Ind}$
- When the economies of scope are weak firms are in prisoner's dilemma $\pi_A^{Ind} > \pi_A^{Bund}$

Conclusion

- In a monopoly, bundling
  - Increases firm's profit
  - Reduces consumer surplus
- In a duopoly, bundling and economies of scope
  - Reduces firms' profits with high competition
  - Can increase firms' profits when the competition is not very high
  - Increase consumer surplus

Thank you - Merci

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