

ECONOMIA INDUSTRIALE

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Discriminazione del prezzo

- Vedi Cabral cap. 10

- **Discriminazione di prezzo (DP):** sotto alcune condizioni, l'impresa fissa per lo stesso bene prezzi diversi
- Gli operatori non sono informati delle differenze di prezzo

oppure

- I costi di transazione sono troppo alti (acquisto e rivendita)
- La DP è pertanto possibile solo in assenza di mercati secondari (attraverso l'arbitraggio)(ed è più facile per i servizi)

Esempi di DP

- Biglietti aerei
- Menu ora di pranzo-ora di cena
- Tariffe flat (internet, telefono)
- Biglietti cinema pomeriggio-sera
- Farmaci

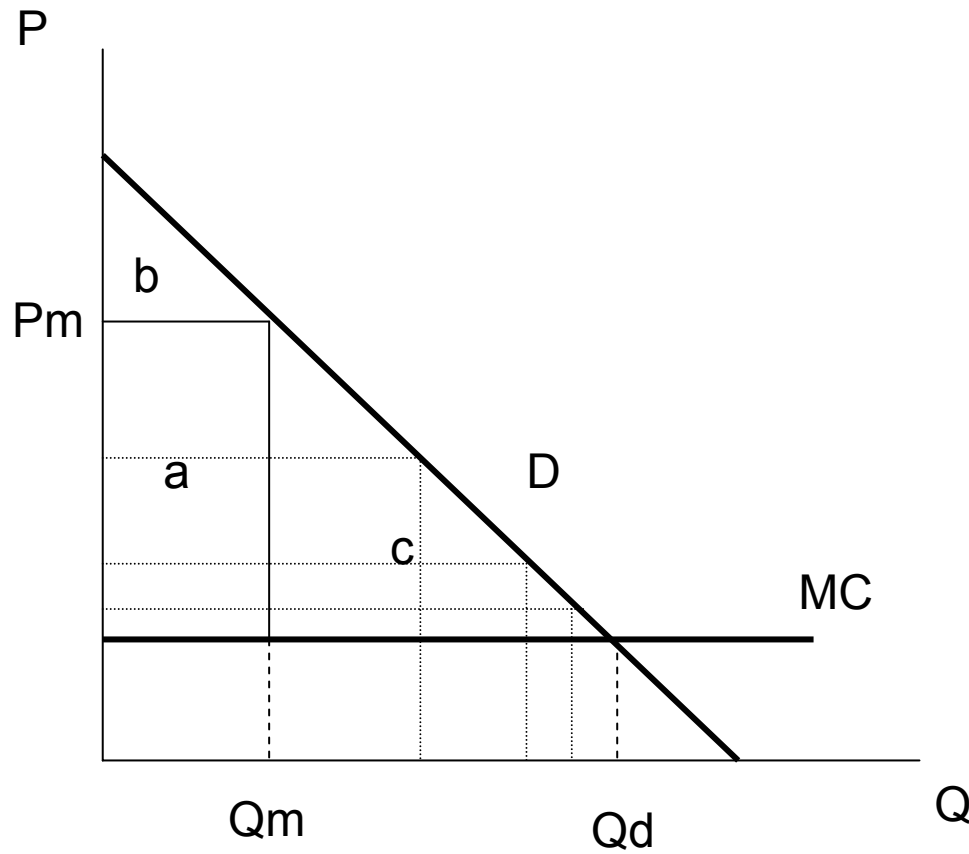
The terms for leasing two telephones for social purposes, connecting a dwelling house with any other building, will be \$20 a year; for business purposes \$40 a year, payable semi-annually in advance.

Bell Telephone Association, 1877

DP di primo grado

- Discriminazione di prezzo perfetta: il venditore fissa prezzi diversi per ogni consumatore
- Il prezzo è pertanto = disponibilità a pagare di ciascun consumatore
- Il monopolista vende a tutti i consumatori la cui WTP è almeno uguale al costo marginale
- Poco frequente → esempio: la vendita di aeroplani alle compagnie aeree.

DP di primo grado



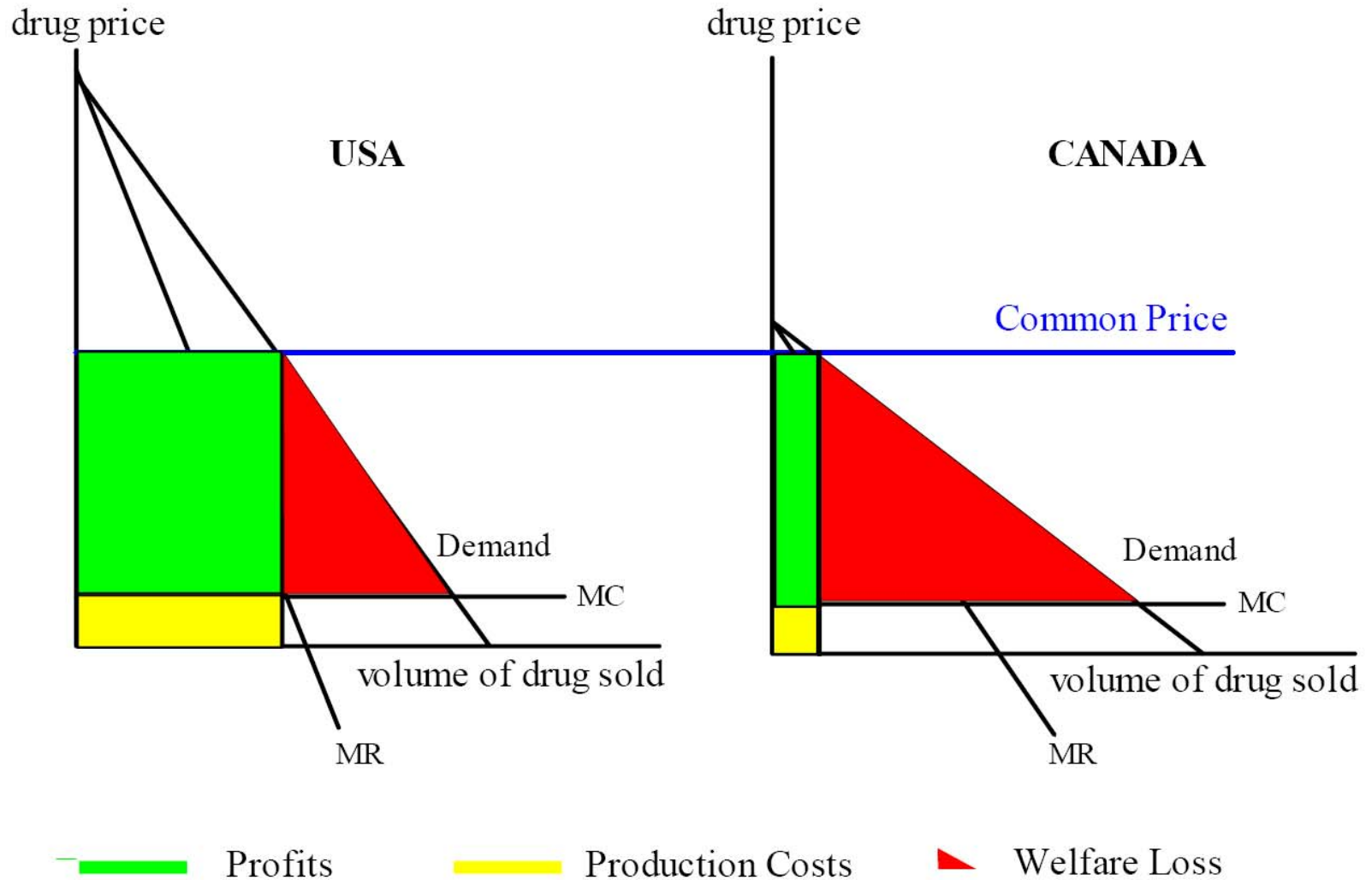
DP di secondo grado

- L'impresa offre le stesse tariffe (prezzi) a tutti i consumatori, ma i consumatori effettuano una auto-selezione (scelgono tra offerte diverse)
- Esempi: tariffe voli

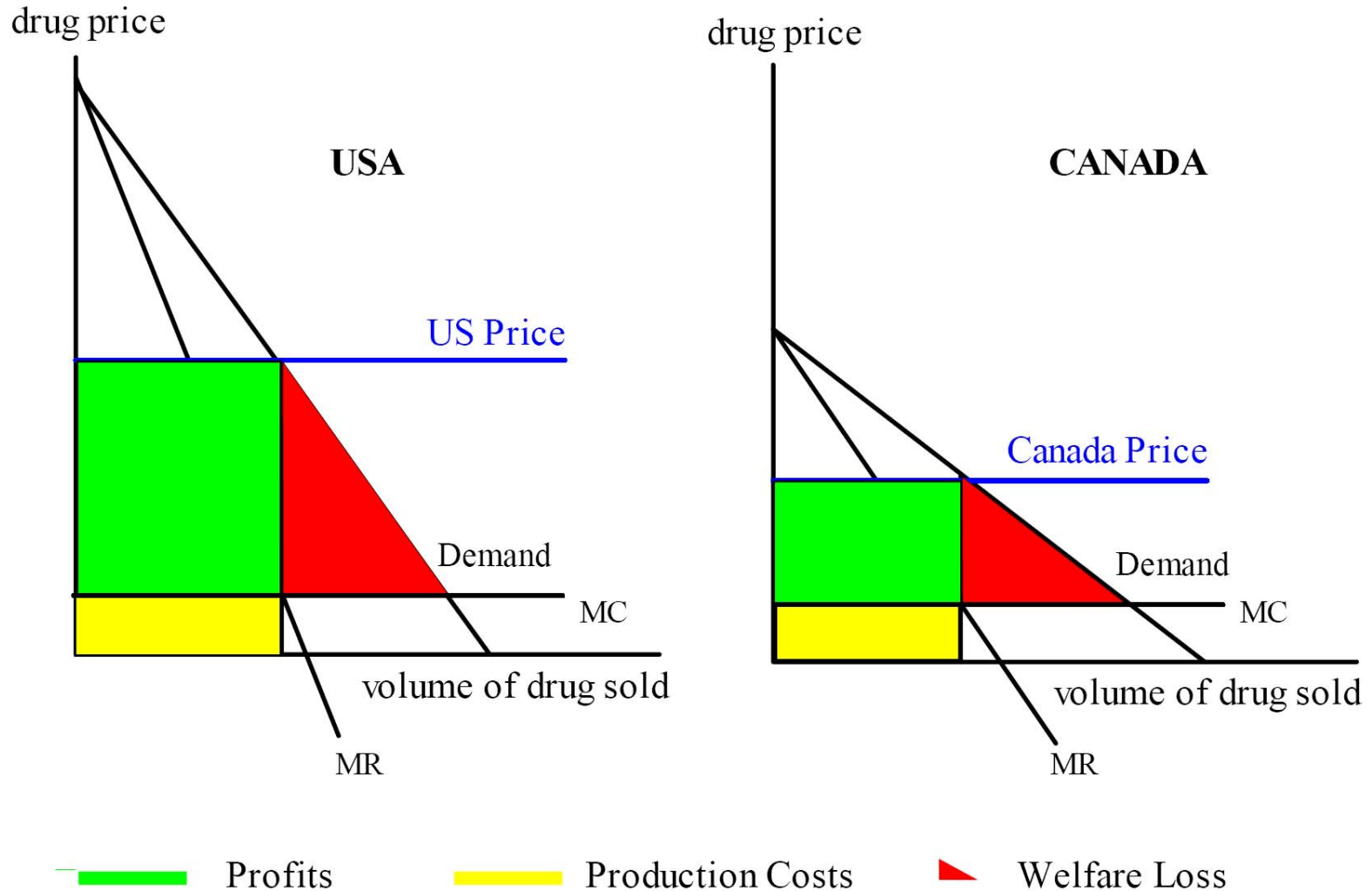
DP di terzo grado

- Il venditore divide i consumatori in gruppi, fissando un prezzo diverso per ciascun gruppo
- I gruppi possono essere giovani-anziani (biglietti cinema), studenti-docenti (software), paesi (farmaci)
- Discriminazione spaziale (paesi)
- Segmentazione del mercato
- Il venditore dovrebbe praticare un prezzo più basso nei segmenti di mercato con la domanda più elastica

Profitti del farmaceutico senza discriminazione del prezzo



Profitti del farmaceutico con discriminazione del prezzo



Curva di domanda A: $P_a = \$80 - 0,16Q_a$

Curva di domanda B: $P_b = \$35 - 0,07Q_b$

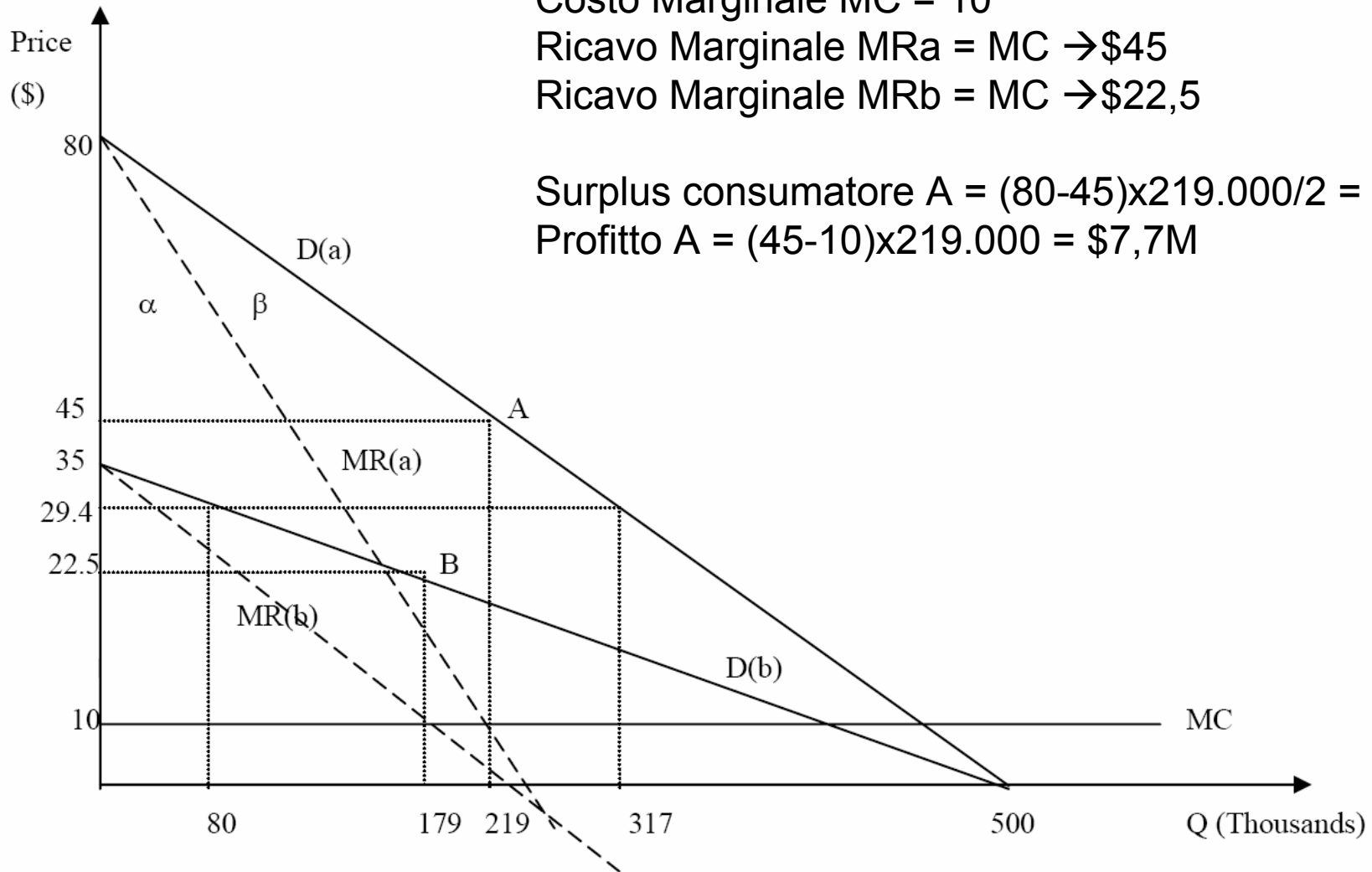
Costo Marginale $MC = 10$

Ricavo Marginale $MR_a = MC \rightarrow \$45$

Ricavo Marginale $MR_b = MC \rightarrow \$22,5$

Surplus consumatore A = $(80-45) \times 219.000 / 2 = \$3,8 \text{ M}$

Profitto A = $(45-10) \times 219.000 = \$7,7 \text{ M}$



Tratto da:

Danzon P., Towse A. Differential Pricing: Reconciling R&D, IP and Access, *International Journal of Health Care Finance and Economics*, 3, 183–205, 2003.

Two Policy Objectives:

- Access to and affordability of existing drugs
- Incentives for R&D to develop new drugs
 - Requires intellectual property rights

The Key to Reconciling these Objectives

- International price differentials, which requires
- Separability of international markets

The Cost Structure of Research-Based Medicines

- R&D expense is much higher for pharmaceuticals than for other industries
 - 13-20% of sales for US companies
 - > 30 % percent of total cost of developing, producing and marketing a drug (including forgone interest)
- R&D is a fixed cost, invariant to volume, sunk at launch
- Marginal cost (MC) is relatively low:
 - < 25 – 50 % of total cost (production, distribution)
- Marginal cost pricing ($P = MC$) will not pay for fixed costs of R&D

The Role of Patents in R&D

- Competition and free entry of copy products will force prices down to MC
- Marginal cost pricing ($P = MC$) will not pay for fixed costs of R&D
- Patents permit the innovator firm to bar copy products, in order to permit $P > MC$ for life of patent
- Patents are necessary, not sufficient, for innovator to break even, including the cost of R&D

R&D as a Global Joint Cost

- R&D is a “joint” fixed cost of serving all patients
 - Cannot be causally attributed to specific countries
- Necessary conditions for break even:
 - $P_j > MC_j$: price in each country covers its MC
 - $\sum (P_j - MC_j) > F$; (F =rate of return of capital)
 - in aggregate, price-cost margins must be sufficient to cover the joint, fixed cost of R&D
- Uniform prices in all markets are not necessary or desirable to achieve global breakeven

R&D as a Global Joint Cost

Necessary conditions for (second best) efficiency in drug utilization and drug development are:

(1) price P is at least equal to marginal cost MC in each market or country;

(2) prices exceed MC by enough, in aggregate over all markets, to cover the joint costs of R&D, including a normal, risk-adjusted rate of return on capital (F):

$$P_j \geq MC_j, \text{ and}$$

$$\Sigma(P_j - MC_j) \geq F$$

Ramsey optimal pricing

Ramsey (1927) optimal pricing (ROP) is the set of price differentials that yield the highest possible social welfare, subject to assuring a specified target profit level for the producer, usually a normal, risk-adjusted return on capital.

The ROP solution is that:

prices should differ across market segments in inverse relation to their demand elasticities.

Ramsey optimal pricing

$$\frac{p^j - c^j}{p^j} = -\frac{\lambda}{(1 + \lambda)} \frac{1}{E_j} \quad \text{or}$$

$$L^j = D/E_j$$

where E_j is the own elasticity of demand in market j . Thus L^j , which is the mark-up of price over marginal cost (also called the Lerner index) in market j , should be proportional to the demand elasticity E_j .

The proportionality term D is defined by the normal profit (or other) constraint.

Thus if marginal cost is the same in all markets, **ROP means prices differ depending only on demand elasticities.**

If marginal cost differs across markets, these conditions apply to mark-ups over market-specific marginal cost.

Ramsey optimal pricing

The intuitive explanation for ROP is simple.

- Recall that the ideal would be to charge everyone their marginal cost but this is not practical because pricing at marginal cost would not cover R&D.
- The Ramsey solution minimizes the welfare loss from departing from this ideal: more price-sensitive users should be charged a smaller mark-up over marginal cost than less price sensitive users, because the price-sensitive users would reduce their consumption by proportionately more, if faced with the same prices.
- Charging lower prices to more price-sensitive users is also consistent with equity, assuming that lower income consumers have more elastic demand, on average.

Optimal Pricing to Cover Joint Costs: “Ramsey Pricing”

- “Optimal” = pricing to achieve highest social welfare
- Prices inversely related to price elasticity
 - price-insensitive consumers pay more than pricesensitive consumers
- Applies to R&D-based drugs while on patent
- Differential pricing is common for other industries with joint costs (utilities, airlines etc.)
- Pharmacoeconomics implies similar price differentials
- Differential pricing requires separable markets

Market Separability is Breaking Down

Regulation based on International Price Comparisons

- Canada, Netherlands, Italy, etc.
- Informal comparisons in many countries: UK, US
- Minimum price => maximum price in all connected/referenced markets
- Toughest regulator sets the global price

Parallel trade

- Permitted within EU, not yet from non-EU countries
- US recently enacted reimportation provisions; not implemented but under debate
- =>Low price in one country spreads regionally/ globally

Manufacturer Response to Breakdown of Separate Markets

Economic Theory

- Manufacturers minimize losses by setting a single launch
 - Price near high end of the prior price range
 - delay launch rather than accept a much lower price

Evidence

- Launch prices are uniform or in narrow band, BUT
- A uniform price for pharmaceuticals is not good public policy
 - contrary to standard trade theory

A Single Price is Inequitable and Inefficient

- A single, relatively high price is unaffordable for low income countries
=> reduce utilization or lose access to new drugs, though they can pay $P_i > MC_i$
- Single price reduces manufacturer revenues
=> fewer new drugs than with price differentials
=> all patients will be worse off in long run

Price Differences Are Not Cost Shifting

- Two separate markets:
H = high income, L = low income
- Existing medicines:
 - the price in H is unaffected by the price in L, if markets are separate
- Prospective new medicines:
 - Sales in L with $P > MC$ contribute to joint costs

=> lower price in H needed to recoup R&D costs

No Efficiency Gains from Parallel Trade

- Trade benefits consumers, provided that
- Low cost suppliers have lower real costs
 - low input prices or more efficient production
- Low prices for pharmaceuticals reflect aggressive regulation + weak patents
 - not superior efficiency
- Parallel trade may actually increase costs: relabeling, quality concern
- Conclusion: Parallel trade in on-patent, R&D-intensive products is not good policy

Policies to Maintain Separate Markets and Price Differentials

Patent rights based on national boundaries

- traditional in EU, US
- => Patent holder can bar parallel trade

Discourage regulation based on foreign prices

Permit manufacturers to give discounts/rebates through confidential contracts to specific payors/governments

=> Prices can differ without encouraging parallel trade or cross-national comparisons

=> With separate markets, manufacturers have incentives to charge low prices in low income countries

The Free Rider Temptation for Regulation

- R&D joint cost is sunk when prices are negotiated
- Who should pay for the joint costs?
 - => temptation to free ride
- Large buyers can force price to marginal cost through regulation or threat of compulsory licensing
 - no effect on supply of existing drugs
- Low prices in one country spill over to other countries, through parallel trade and international price comparisons
- If everyone pays marginal cost, no one pays for R&D!

Conclusions

- Differential pricing provides a way to pay for R&D while assuring access for low income countries
- If market separation is assured, to prevent “spillover” of low prices, patents need not imply high prices in LDCs
- Additional funding may nevertheless be needed: If developing countries cannot pay their marginal cost;
- To develop drugs not used in high income countries
 - In this case, prices in high income countries cannot be counted on to pay for the common costs of R&D