Price Regulation

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Monopoly Price
Competitive Price
    1st best pricing
    2nd best pricing: Ramsey pricing

Economic Efficiency

- Max. general welfare of consumers and producers
- Max. the sum of consumers' surplus and producers' surplus
- Example of goals that conflicts with the economic efficiency
  - Lifeline telephone service
    - 911, 119
    - welfare of indigent
  - Subsidies (cross subsidy)
    - from urban customers to isolated subscribers universal service
  - Inefficient entrant with high cost product

Monopoly Price with One Product

Price is determined at Q that maximizes the profit

$\pi = TR - TC$

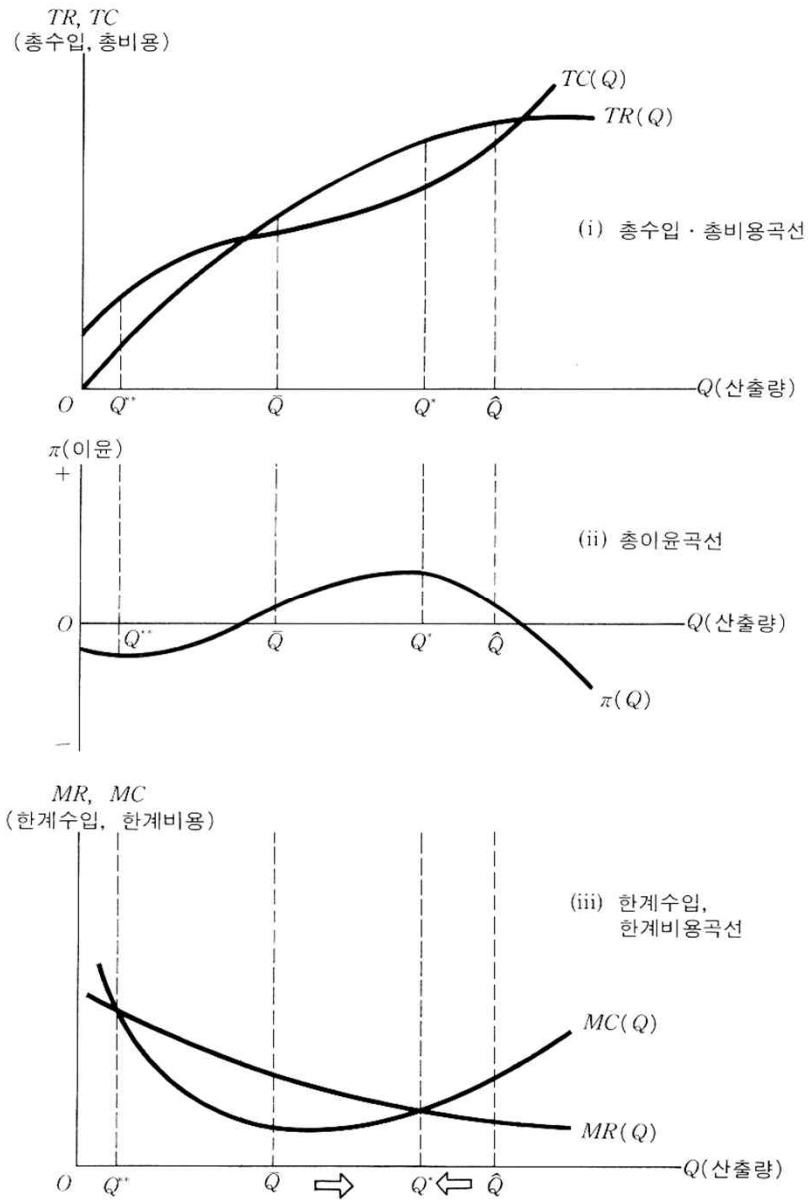
$d\pi/dQ = dTR/dQ - dTC/dQ = 0$

P is determined at Q where MR = MC

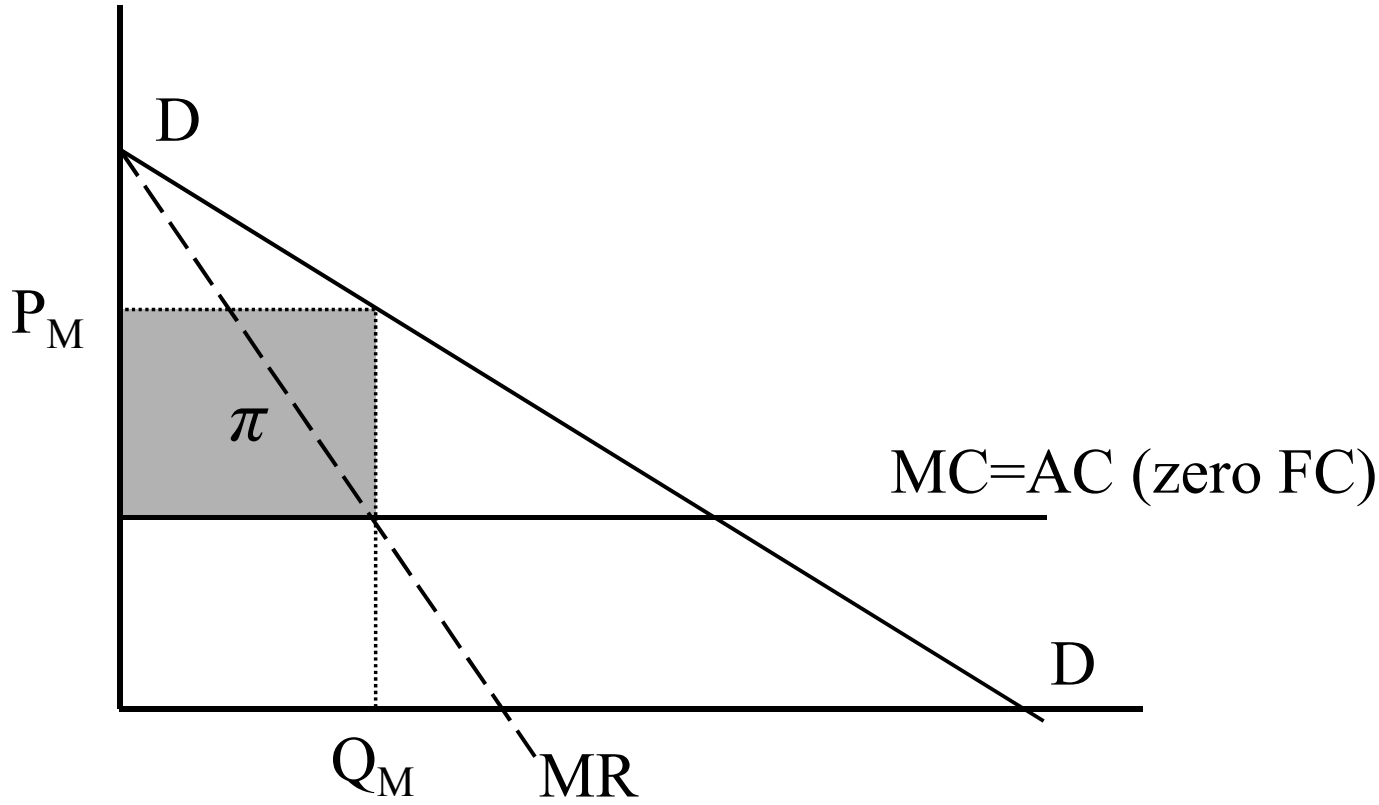
Best for supplier

MR = MC: not the point where R is maximized

그림 10-1 利潤極大化 産出量의 도출



Monopoly Price with One Product



Competitive Price

Improve the monopoly situation

Maximize the consumer's surplus (CS)

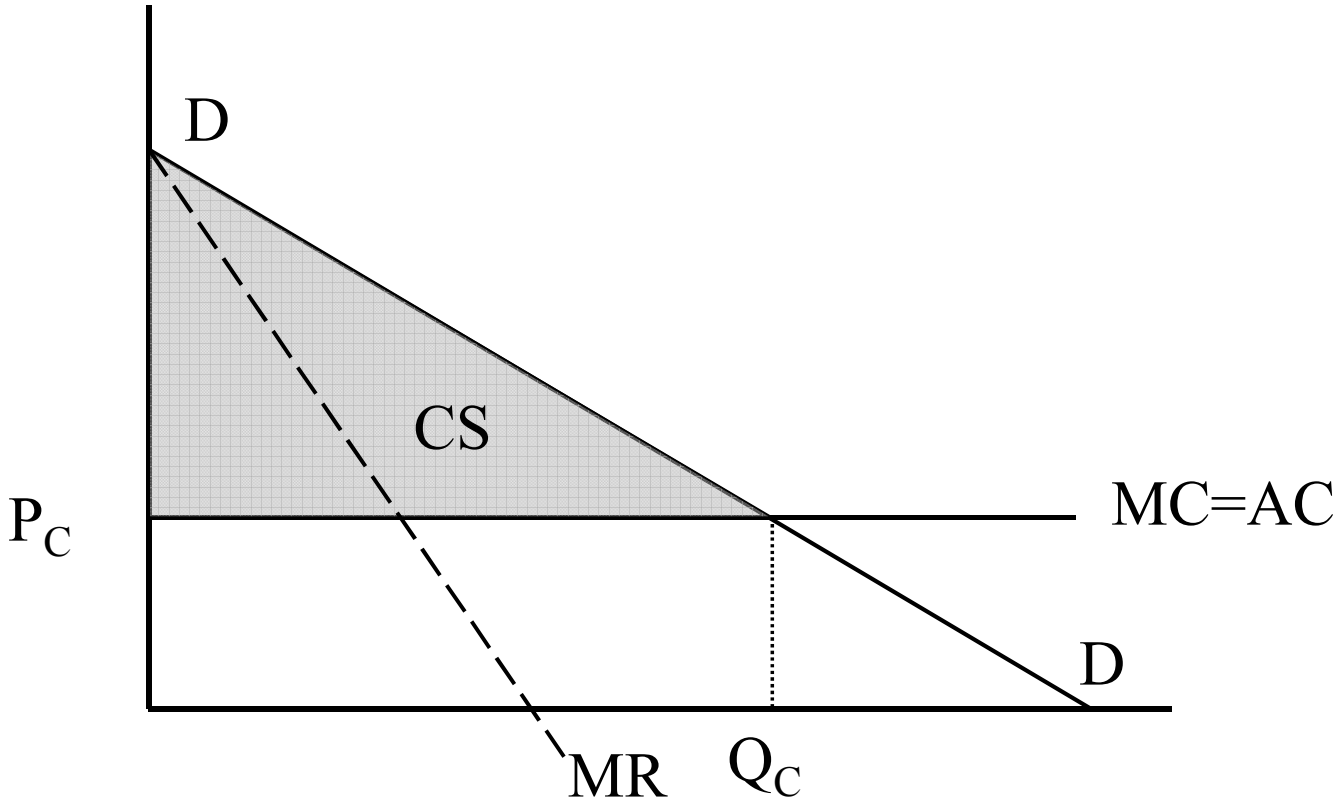
Price is determined at Q where $\pi = 0$

See the previous figure

1st best pricing: P = MC

Best for consumer

Competitive Price



Perfectly Competitive Market

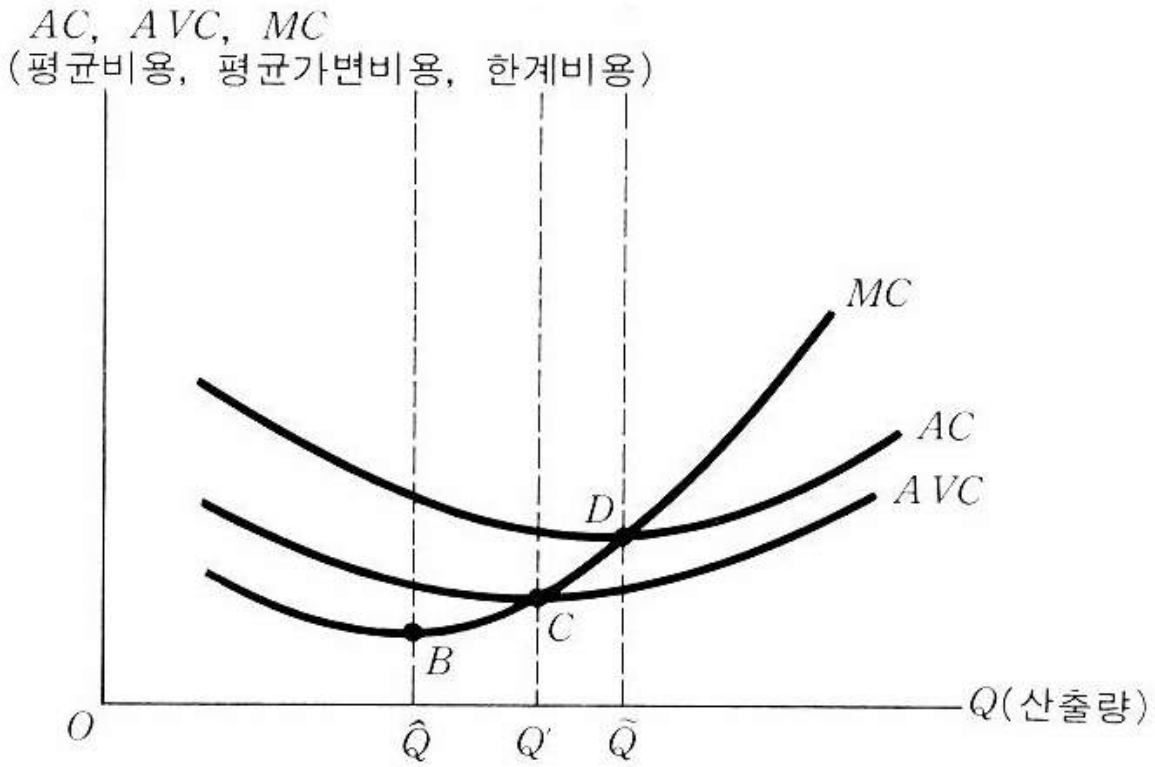
1. Market populated with large number of small firms
2. Local constant returns to scale
   neither economies nor diseconomies of scale

Zero economic profit, $\pi=0$

However, it includes gross earnings sufficient
- to pay interest
- to provide return to equity holders
- i.e. “fair Rate of Return”

Case of MC < AC

As long as average cost is declining by the scale of economy, MC < AC



Ramsey Price with one product

Compromise the monopoly rule and competitive rule

Applied to the field of "regulation"

As long as average cost is declining (with Economy's of scale) MC < AC

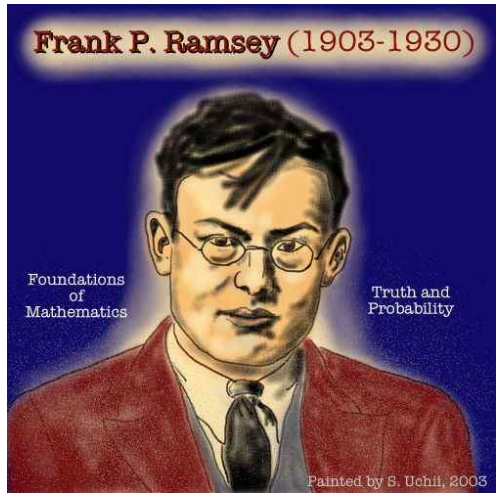
If P = MC, then the 1st best pricing loose money

i.e., TC > TR: $\pi < 0$

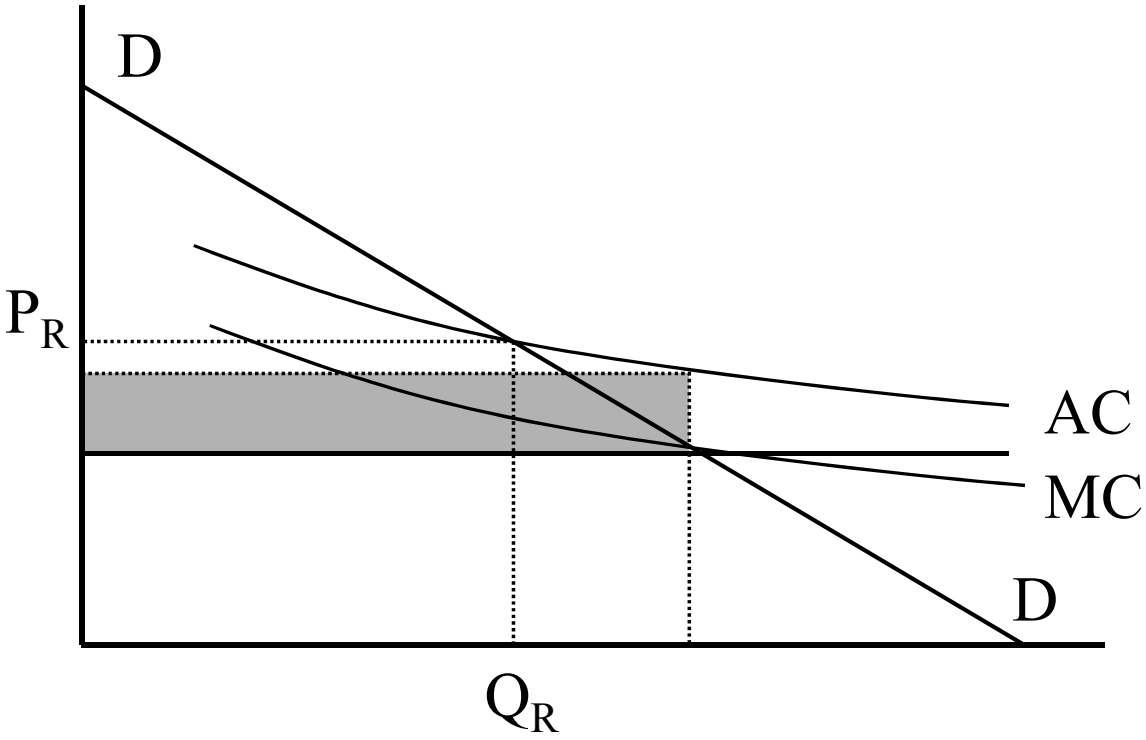
How to correct it?

If P = AC, then TC = TR: $\pi = 0$

2nd best pricing: P = AC



Ramsey Price with one product



Ramsey Price with Two Products

Price to cover the total cost of two products

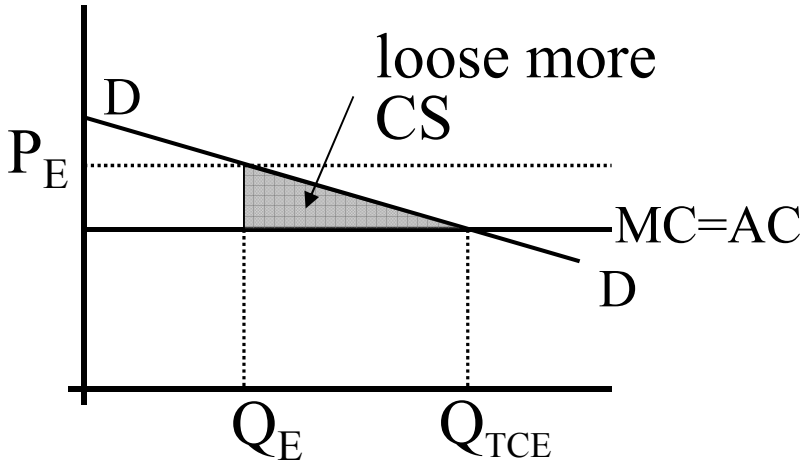
Max consumer surplus

s.t. producer's profit $\pi = 0$

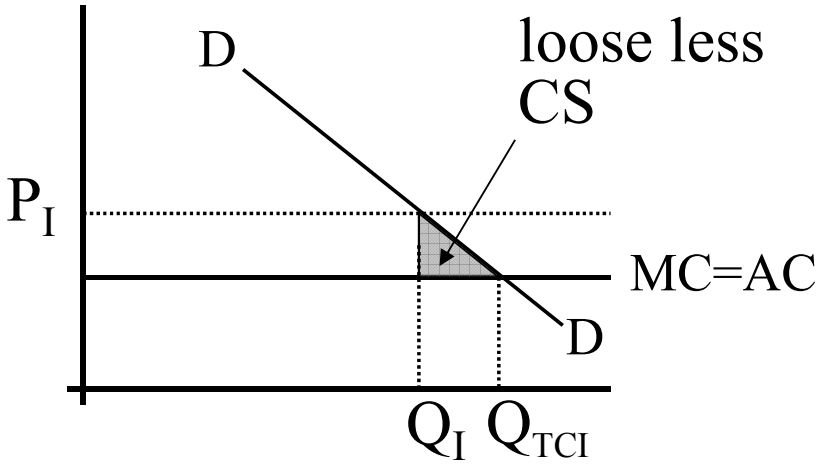
Question: How high to raise the price to cover the total cost of two products with least harms to the two types of consumers?

When $\Delta P_E = \Delta P_I$

Product A: Long Dist (Elastic)



Product B: Local Exchange (Inelastic)



Ramsey Price with Two Products

If the price is raised equally in the two products,
loose more CS in elastic product than in inelastic

The rule is Ramsey pricing (2nd best pricing)
"Raise price more in inelastic market than in elastic"

Inverse elasticity
The difference between price and MC is inversely related to the price elasticity of demand

Ramsey Price with Two Products

Price to cover the total cost of two products

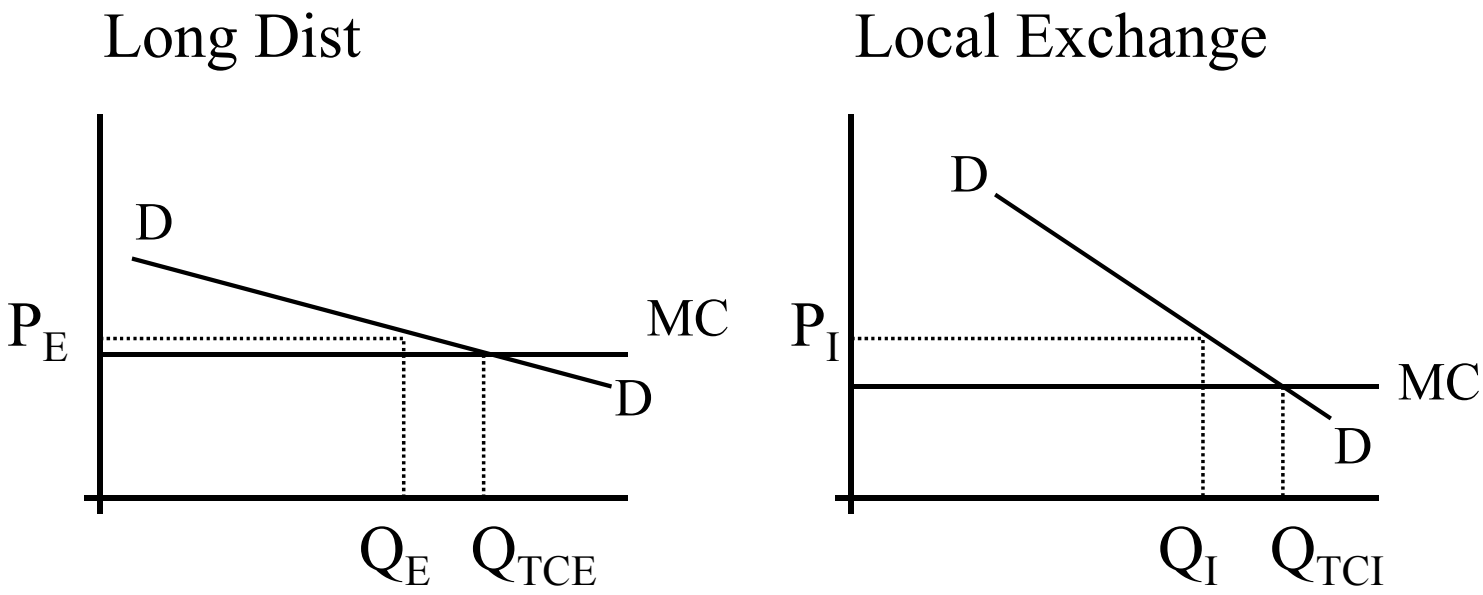
Max consumer surplus

s.t. producer's profit $\pi = 0$: financially may infeasible

$TC = TC_E + TC_I = P_E Q_E + P_I Q_I = TR, \pi = 0$

Modify the price to cover total cost and to minimize the deviation from MC

Ramsey Pricing

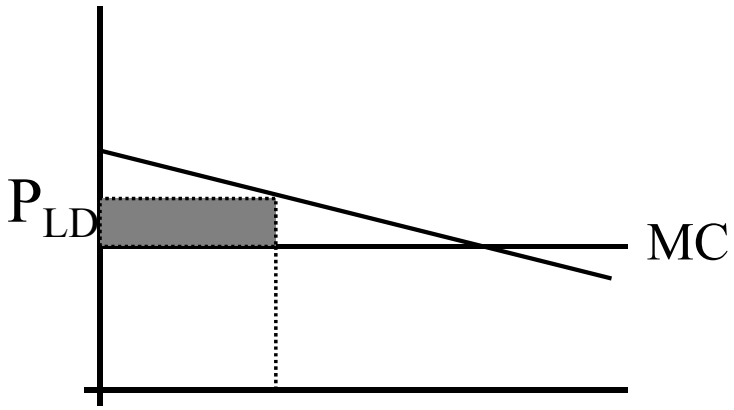


Raise price more in inelastic market than in elastic market: raise price more that yields larger revenue

Burden more customer who have inelastic demand

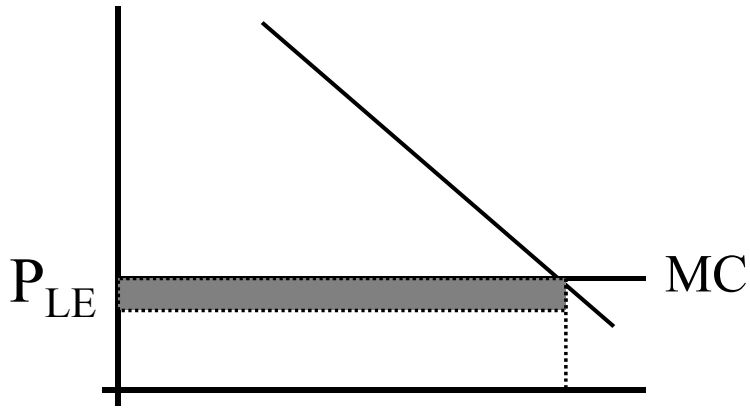
The way prices are charged

Long Dist



over-priced
price above MC

Local Exchange



under-priced
price below MC

Exactly opposite to the Ramsey pricing!
Universal Service: bring more people in the network

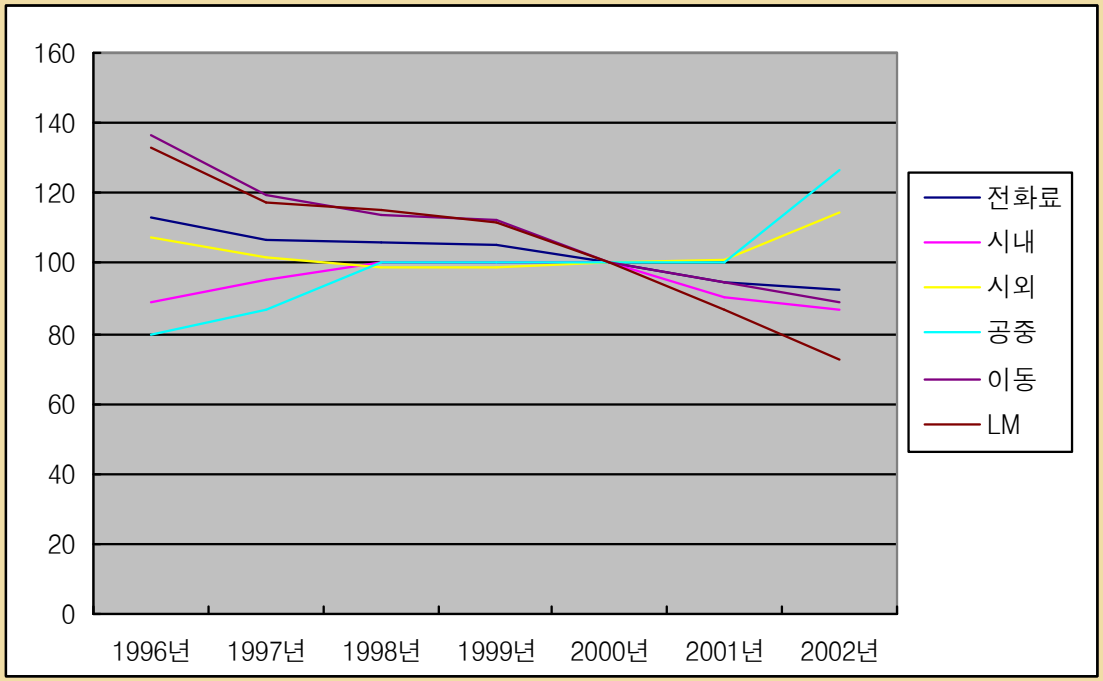
Telecom Price Index

	Laspeyres	Paasche	Fisher	100 in 2000
1996	37.71	96.92	60.45	114.62
1997	36.91	86.22	56.41	106.95
1998	37.55	83.23	55.90	105.99
1999	37.47	82.43	55.58	105.38
2000	36.67	75.86	52.74	100.00
2001	34.93	72.30	50.26	95.28
2002	35.99	66.66	48.98	92.86

	Total	Local	Long Line	Public	Cellular	LM
1996년	127.1	88.9	115.2	80.2	137.4	n.a
1997년	115.9	93.5	105.2	86.7	122.3	n.a
1998년	108.9	100.0	100.0	100.0	112.1	n.a
1999년	108.1	100.0	100.0	100.0	110.9	n.a
2000년	100.0	100.0	100.0	100.0	100.0	100.0
2001년	96.5	91.1	97.5	100.0	95.2	95.8
2002년	92.3	86.7	107.5	126.7	89.1	85.8
변화율	-5.8%	-0.4%	-1.3%	+7.8%	-8.1%	-7.1%
가중치	100%	10.4%	6.8%	1.0%	61.9%	15.9%

통계청 발표 전화요금 지수 연도별 추이 (2000년 기준 = 100)

Price index of each service



Competition, scale of economy -> low cellular price

Regulation, low interconnection price -> low LM price

Application of Ramsey Pricing is not straight forward

Ramsey pricing requires elasticities

When the elasticity is endogenously determined by regulatory process, Ramsey price may not satisfy economic efficiency

Regulatory barriers to entry or pricing that hinder obtaining elasticities:

1. Barrier to entry erected by FCC and state regulators
2. MFJ: Business restrictions
3. Delay in tariff authorization
4. The franchising process
5. The inefficient allocation and constraints on the use of spectrum

Perfectly Contestable Market as a guide for regulation

Entry/Exit are easy and costless – no sunk investment
Ideal market than the perfectly competitive market
Generalization of perfect competition
A model for regulation
Perfect contestability
- Ensures the same profit as in a competitive market
- Excludes any firm that is inefficient
- Cross-subsidy cannot endure (why?)
- Prices for economic efficiency and Pareto optimality

Summary (Price Regulation)

Economic efficiency

- Max. welfare of consumers and producers

Monopoly Price: MR = MC

1st best pricing: P = MC

Ramsey pricing: P = AC

Ramsey pricing with two products

- "Raise price more in inelastic market than in elastic"
- Inverse elasticity