

Pricing

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Introduction

- Have seen how prices are set in some market structures
- But there are others in the real world
- Can provide some analytical understanding of them

Cost plus pricing

- Researchers found this was used by many large firms
 - Estimate the cost per unit of output (at some prop of capacity –say 2/3)
 - Add a markup to estimated average cost
 - Markup = (price – cost) / cost
 - Price = cost (1+markup)
- Sometimes target rate of return determines price consider price composed of unit costs
 - » $P = \text{Lab} + \text{Mat} + \text{Mkt} + F/Q + ? A/Q$
 - » Q planned output; A is gross operating assets; ? desired profit rate

Cost plus pricing

- Companies have adopted this approach
- Governments and public utilities use it
- Clearly not maximising profits
- Naïve
 - No account of elasticity of demand
 - No consideration of marginal cost
- But if used properly can be close to profit max

Cost plus pricing

- We know:
- $MR = P (1+1/?)$
- If firm is maximising profit:
- $MC = MR = P (1+1/?)$
- So $P = MC (1/(1+1/?))$
- So profit maximising price is a mark up on marginal cost depending on demand elasticity
 - If AC close to MC then close to max

Multi-product firm

- Demand side
- Possible that price or quantity of one may influence another
- $TR = TR(X) + TR(Y)$
- MR will depend on both products
 - Complements
 - Substitutes

Multi-product firm

- Supply side
- Firms products often interrelated in production
- With fixed proportions of A and B can sum MRs to get a total
- $MR=MC$
- Case 2: Not necessarily all of B is sold

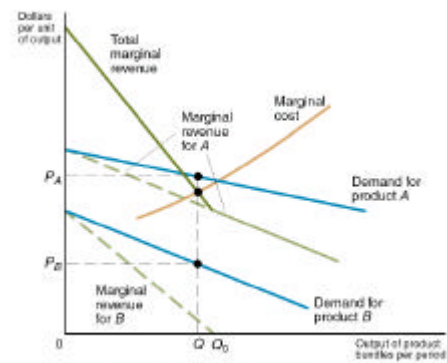


FIGURE 13.1 Optimal Pricing for Joint Products Produced in Fixed Proportions (Case 1)

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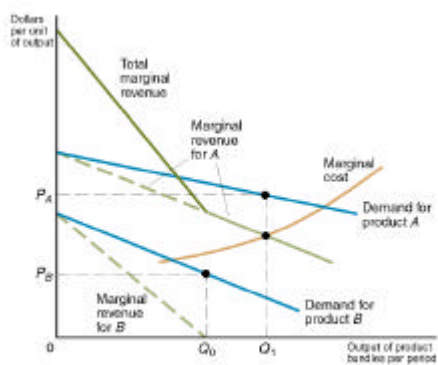


FIGURE 13.2 Optimal Pricing for Joint Products Produced in Fixed Proportions (Case 2)

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Multi product firm

- More realistic: variable proportions
- Isocost curves and Isorevenue lines
- Compare profit level at each tangency point and choose highest (expansion curve)

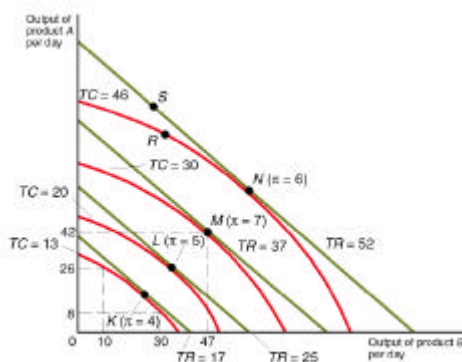


FIGURE 13.3 Optimal Outputs for Joint Products Produced in Variable Proportions

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Price discrimination

- Occurs when sell same product at more than one price or very similar products sold at prices that are in different ratios to marginal cost
- Must be
 - groups with different elasticities of demand
 - Possible to identify and segregate such groups
 - Restricted movement of products across groups

Price discrimination

- Assume two groups: what will company allocate and what price will it charge
 - Maximise profit by making $MR_1 = MR_2$ if had already decided on total output.
 - So need different elasticities to have different prices
 - To determine total output $MR_1 + MR_2 = MC$
 - Allocate as shown

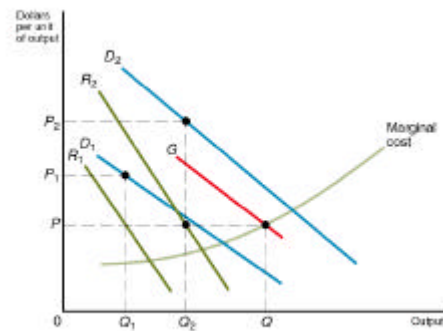


FIGURE 13.4 Price Discrimination

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Price discrimination

- Most cited example of this is airline industry
- same ticket cheaper if bought in advance
- different price elasticity for business and vacation

Price discrimination

- Manager can increase firm profits by using a price discrimination strategy relative to a simple monopoly pricing strategy.
- Under monopoly capture $X+Y$ but not Z
- Price discriminate and can capture Z as there are individuals willing to pay these prices

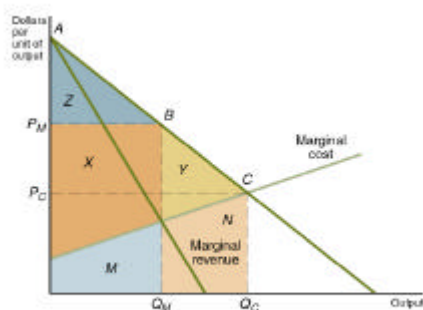


FIGURE 13.5 Rationale for Price Discrimination

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Price discrimination: types

- first degree: charging reservation price (what can charge and consumer will pay)
Supply up to Q_C the the firms demand curve becomes the firms MR curve
- second degree: small number of buyers and able to guess maximum willing to accept:
e.g. gas companies
- third degree: first example -not charging reservation price but single price in each market

Price discrimination

- Using coupons and rebates -less elastic don't bother; more elastic do
- Transfer pricing: internal sales within companies; including cross border for MNCs
 - determine optimal output Q and then get MC of production at his and set equal to price

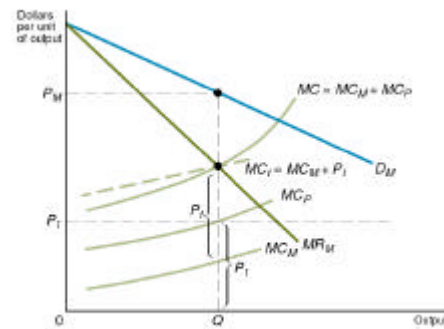


FIGURE 13.8 Determination of Transfer Price, Given No External Market for the Transferred Good

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Price discrimination: transfer

- If perfectly competitive external market for transferred product
 - optimal price is market price
 - horizontal demand curve for intermediate output -produce Q_P to max profit
 - for whole firm set $MR = MC$ so want Q_M of intermediate product
 - Sell difference in external market

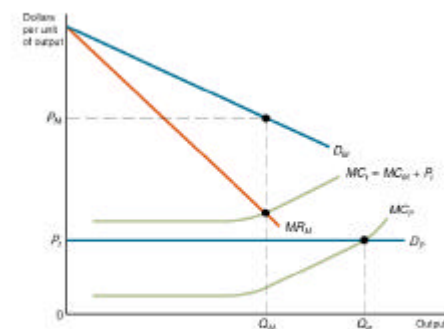


FIGURE 13.9 Determination of Transfer Price, Given Perfectly Competitive External Market for the Transferred Product

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Price discrimination

- Clearly we can understand some of observed market segmentation using our theory
- World is more complex but underlying principles seem to hold