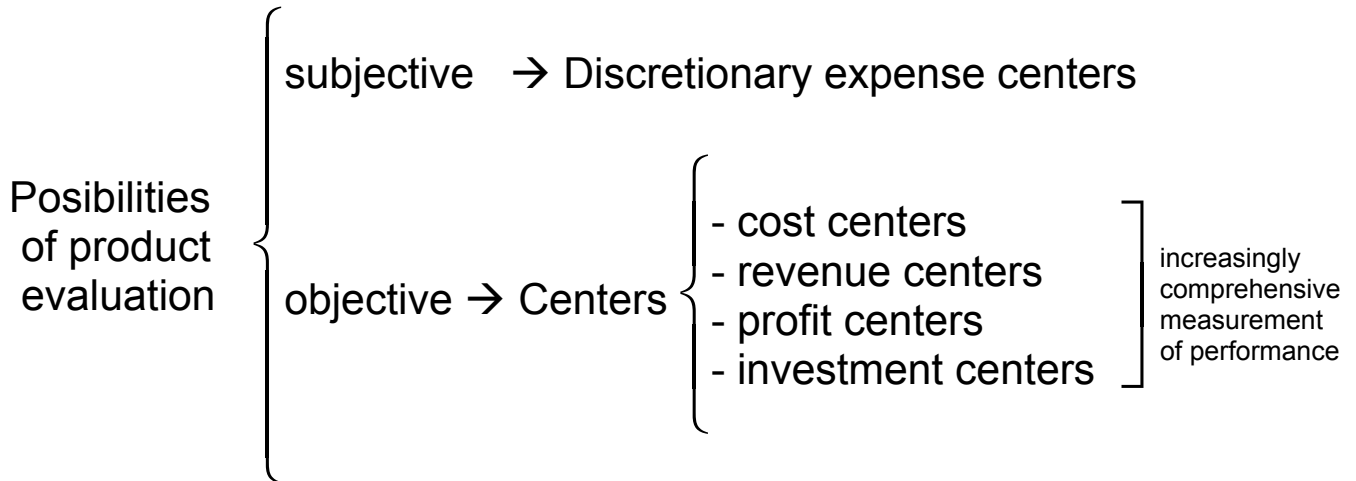


# Divisionalization and transfer pricing

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## Types of divisions:



# A. Divisionalization without objective product measurement

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## 1. Expense center (often called “Discretionary expense center”)

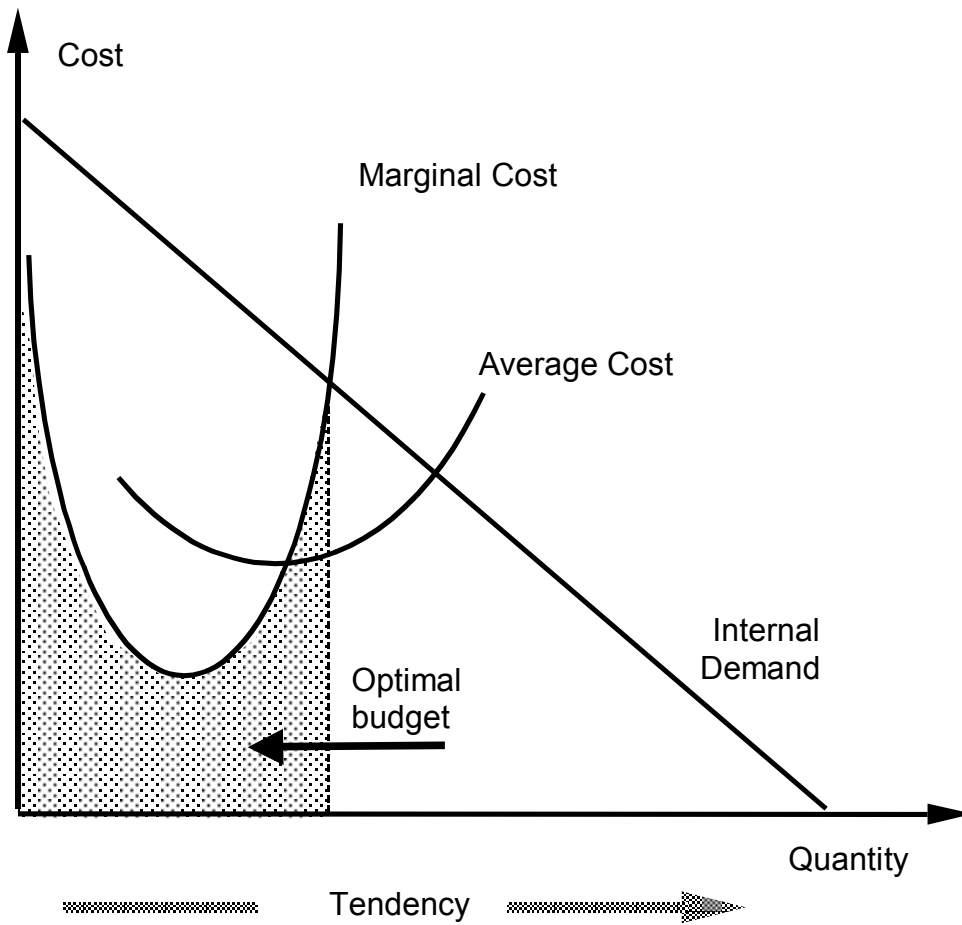
### Nature

- Given a budget, perform a task that consists of providing a badly defined set of services
- Examples: accounting, personnel, planning departments; the CEO; any Ministry, some universities, the presidential office in all universities, the Government, the National Health Service, etc., etc.

### Problems: Size & inefficiency—reasons: incentives:

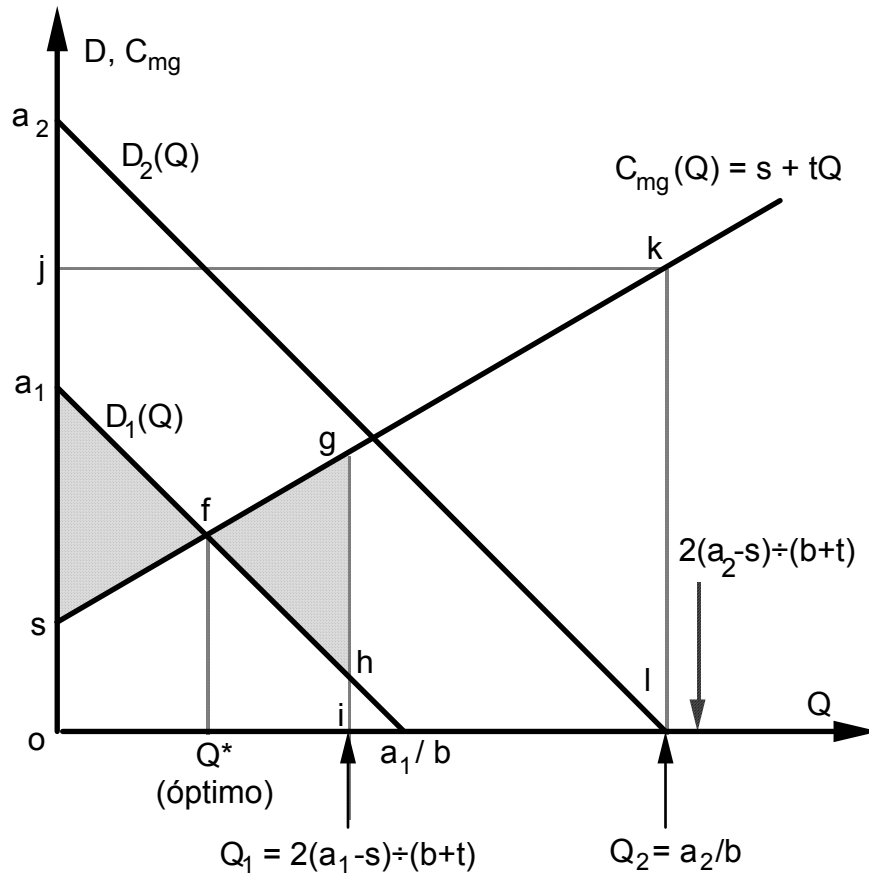
- **Users** are not charged → unlimited demand by internal clients
- **Providers** prone to “empire building” b/c of private benefits: consumption, career building, prestige, rent allocation
- **Budget office** badly informed with respect to users’ value and supplier’s costs:
  - budget office ignores real costs and utilities,
  - perverse incentives not to reveal information (“spend the annual budget fully!”)

# Discretionary expense center with increasing cost function

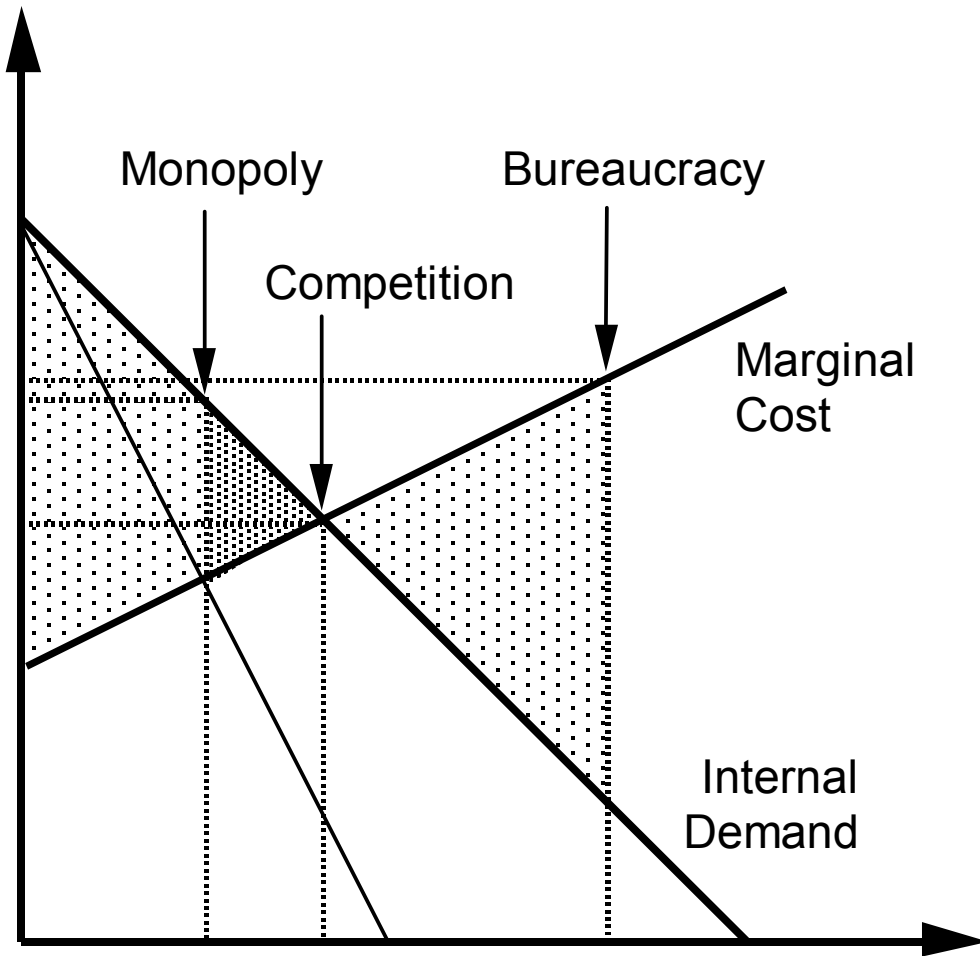


## The equilibrium of a bureaucracy

Niskanen model: The equilibriums of a bureaucratic service maximizing its budget for two demand functions,  $D_1(Q)$  y  $D_2(Q)$ .



### 1.3. Production under competition, monopoly and bureaucracy



## **2. Recurrent budget cuts—solution or palliative?**

- At least breaks usual “incremental” budgeting
- Budget office does not know where to cut!
- Possibility of “gaming” behavior with budget controller: e.g., closing service to crucial clients, strikes of sensitive services, etc.
- Root causes subsist → problem reproduces → recurrent budget cuts
- An attempt to rationalize it: “zero-base” budgeting

## **3. Cost allocation of joint costs**

Very soft but prevalent, and usually not considered as explicit charging of “prices”

- Concept: joint costs are imputed according to cost “drivers”
- Example: heating costs allocated proportionally to surface
- Incentives: possible cost consciousness
- Distortions: surface → excessive height; direct labor → excessive capital intensity; (many distortions in taxation: tax on windows)
- “ABC” method: “activity based costing” = chose the right drivers (easy to say) and minimize product variety

#### **4. A true, but costly, “solution”: modify the incentives, mainly thru internal charges, even aiming to create an “internal market”**

##### Incentives

- **Users:** opportunity cost through freedom of choice (among expenses, internal providers, external providers) & price (partial, total)
- **Providers:** objectives set by new information gathered, profit sharing, freedom to organize unit

##### Why needed and effects

- users reveal information → better control of budget
- users decide resource allocation → efficiency

##### Requirements

- no monopoly → multiple providers, even external
- economizing incentives: opportunity cost → freedom

The “locus of uncertainty” problem:  
freedom may cause surplus capacity. Factors:

- Expense composition affects consumption predictability.
- Computers help budgeting in real time
- Capacity to speedy re-contracting of recourses
- Flexibility for internal reallocation of recourses

#### **5. Discussion**

- The Lenin dilemma: Does it make sense to nationalize an industry (e.g. healthcare) to create an internal market?
- Examples: photocopies, British NHS, fees in public services

## B. Divisionalization with objective measurement of performance

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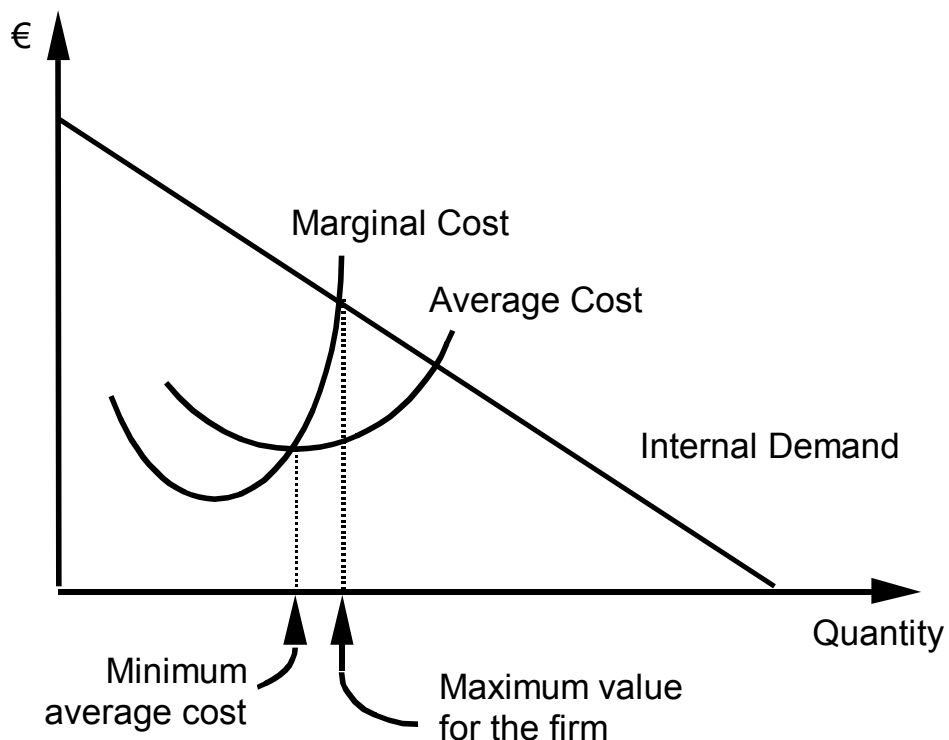
### 1. Cost centers

1.1. Useful for manufacturing units

1.2. The problem of quality

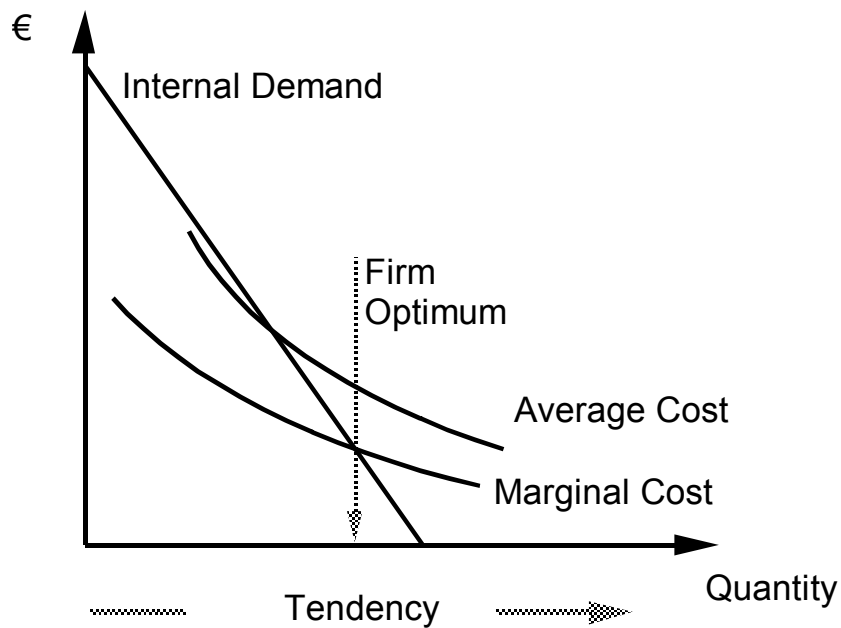
1.3. The level of production problem

a) Increasing costs

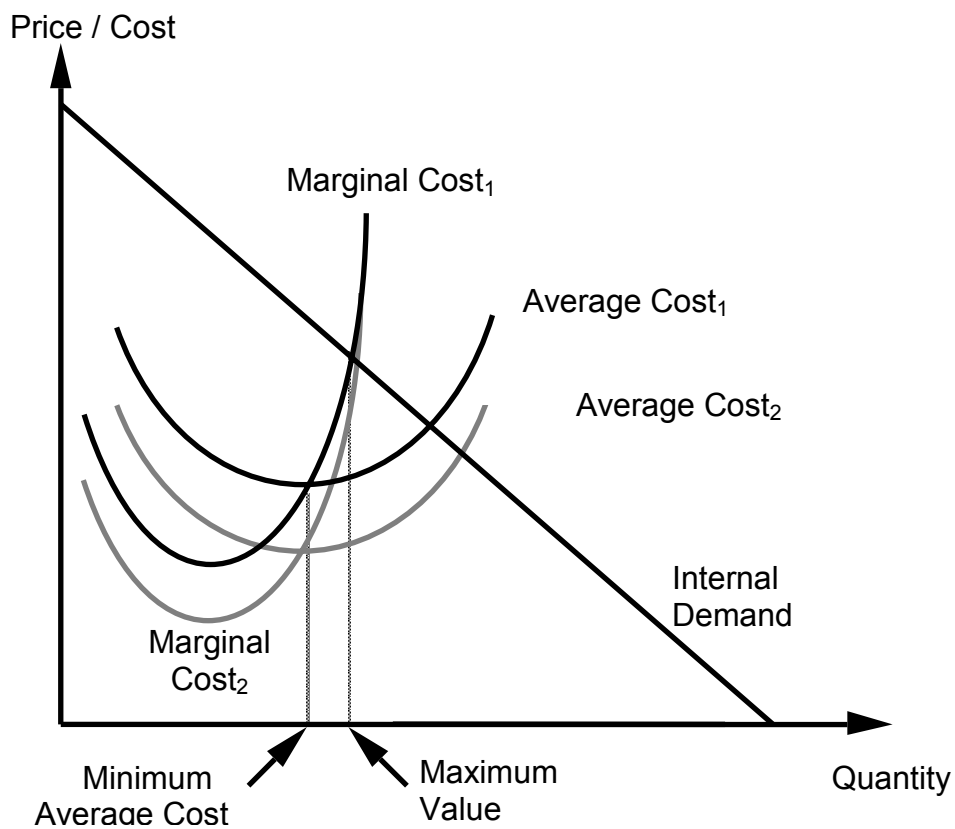




b) Decreasing costs



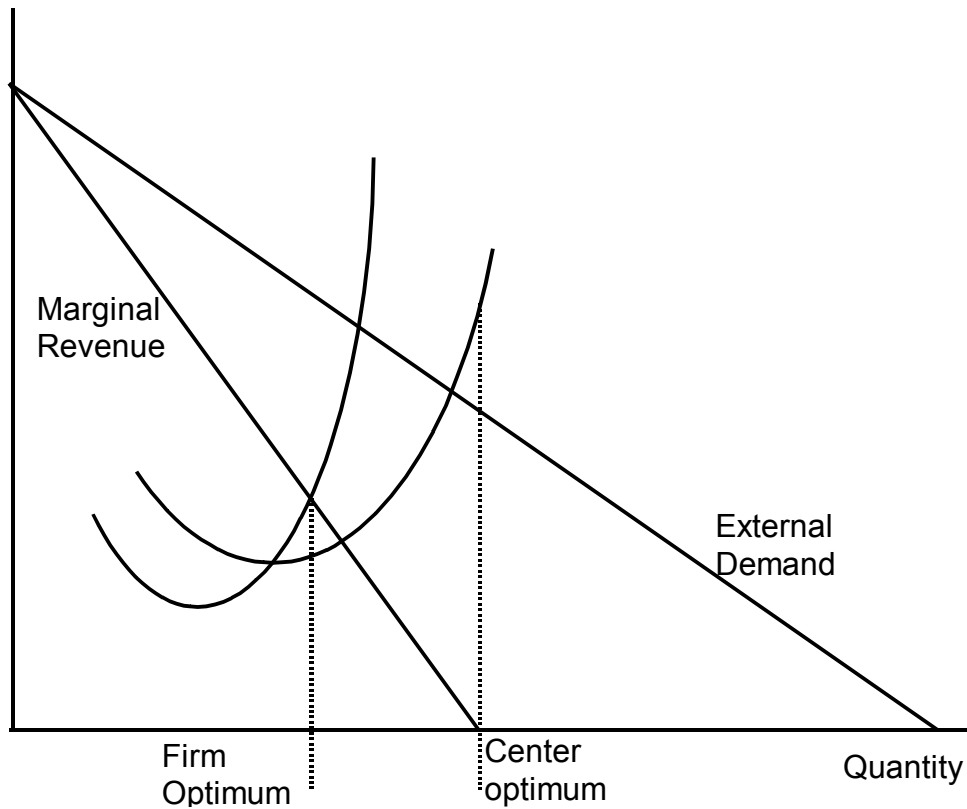
1.4. Technical change and average cost minimization



## 2. Revenue centers

2.1. Useful for marketing units

2.2. The level of sales problem



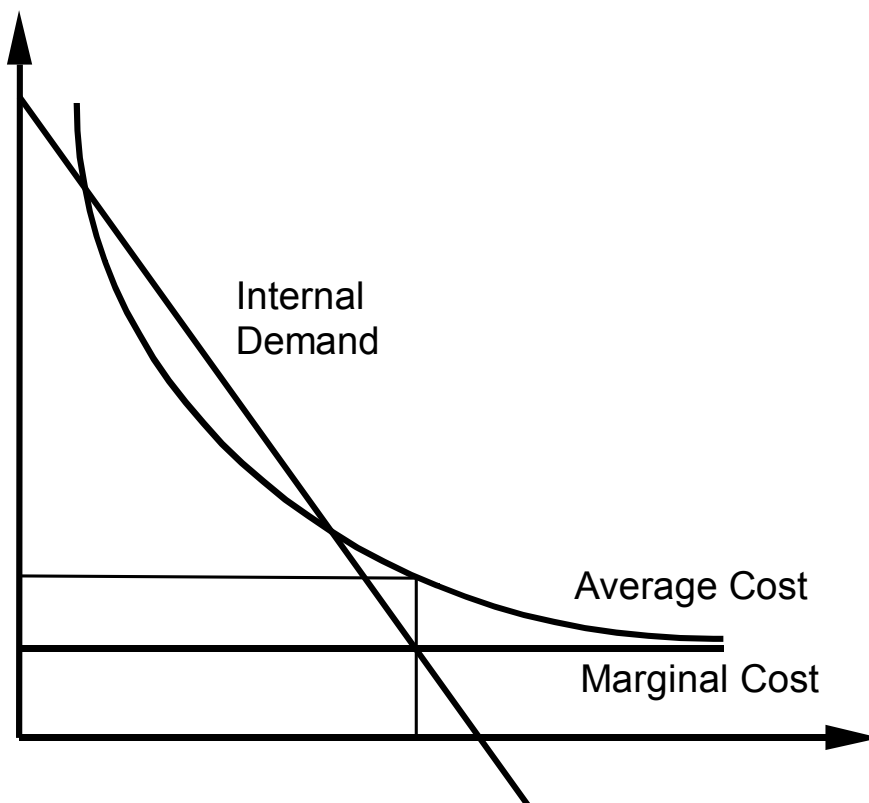
2.3. The product mix problems

### 3. Profit centers

3.1. Rationale

3.2. The problem of interdependencies

3.3. Economies to scale (decreasing unit costs)



Policies:

- a) cost center
- b) charge users an annual fee, independent of consumption level
- c) charge users marginal cost and subsidize deficit
- d) full cost  $\rightarrow$  utilization lower than optimum level,  $OQ^*$ .

## 5. Transfer pricing

Example: [double marginalization](#)

### 5.1. Conflict of objectives

- Motivation → freedom → internal monopolistic behavior
- Congruence → constraints, interference

5.2. Theory → General rule: Opportunity cost for the firm

5.3. Practice → predominance of full cost, not variable cost (the accounting proxy of marginal cost)

## 4. Investment Centers

### 4.1. Rationale

### 4.2. Return on Investment, $ROI = \text{Profits} / \text{Investment}$

Table 1. Initial situation, a firm with two divisions

Division	profit	investment	ROI
1	20	100	20 %
2	10	200	5 %
firm	30	300	10 %

Table 2. Additional Projects

Division ROI	profit	investment	project
1	15	100	15 %
2	7	100	7 %

Table 3. Division 1 with or without additional project

Division	Initial Situation			With additional project		
	profit	investment	ROI	profit	investment	ROI
1	20	100	20 %	35	200	17,5%
2	10	200	5 %	10	200	5,0%
firm	30	300	10 %	45	400	11,2%

Table 4. Division 2 with or without additional project

Division	Initial Situation			With additional project		
	profit	investment	ROI	profit	investment	ROI
1	20	100	20 %	20	100	20,0%
2	10	200	5 %	17	300	5,67%
Firm	30	300	10 %	37	400	9,25%

#### 4.3. Residual profit (Economic Value Added, "EVA")

*Assume cost of capital = 10%*

Table 5. Residual profit of the two divisions, with and without additional projects

Division	Initial Situation			With additional project		
	profit	investment	EVA	profit	investment	EVA
1	20	100	10	35	200	15
2	10	200	-10	17	300	-13

## 6. Imperfect information & monopoly transfer pricing: “double marginalization”

Demand  $P = 110 - 5Q$

MC, marginal cost = \$10

Optimum of an integrated firm:

$$MC = MR \rightarrow 10 = 110 - 10Q \quad (\text{total revenue} = P Q = 110Q - 5Q^2)$$

$$\rightarrow P = \$60; Q = 10 \text{ units; total profits} = \$500$$

### Decentralized firm

Two divisions (manufacturing and distribution)

Bosses motivated to maximize divisional profits

Demand well known by all

Only manufacturing boss knows manufacturing cost

Marginal cost of distribution = zero

If  $P_t = \$10$ , then optimal level of  $Q$ ;  $B_m = 0$ ;  $B_d = \$500$

But  $B_m \uparrow$  if  $P_t \uparrow$  — Which transfer price  $P_t$  will maximize  $B_m$ ?

For all  $P_t$ , distribution will maximize  $B_d$ ,

$$B_d = PQ - P_t Q = (110 - 5Q)Q - P_t Q = 110Q - 5Q^2 - P_t Q.$$

$$Q^* = (110 - P_t) / 10 \quad (\text{for any given } P_t)$$

Profits of manufacturing division,  $B_m$ , will then be

$$B_m = P_t Q^* - 10Q^* = P_t (110 - P_t) / 10 - (110 - P_t) \rightarrow P_t^* = 60$$

$$Q^* = [110 - 60] / 10 = 5, \text{ which will sell outside at a price } (110 - 5 \times 5) = \$85$$

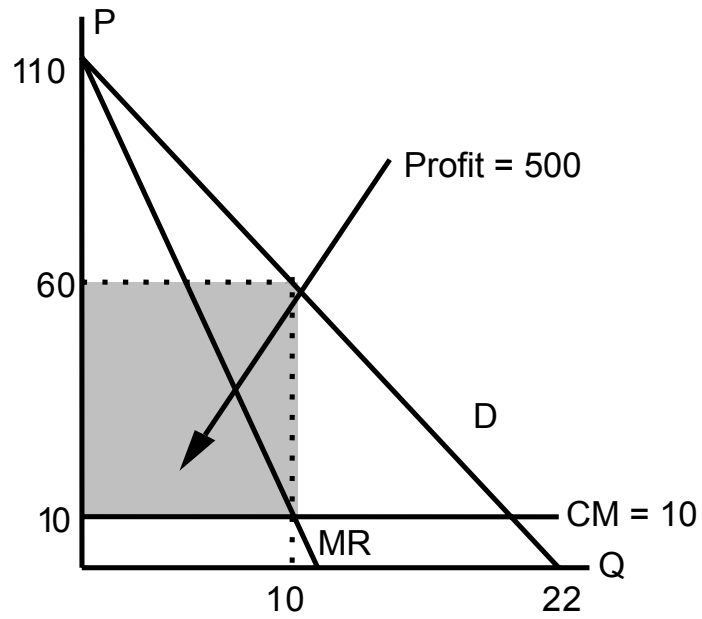
$$B_m = 60 \times 5 - 10 \times 5 = \$250$$

$$B_d = 85 \times 5 - 60 \times 5 = \$125$$

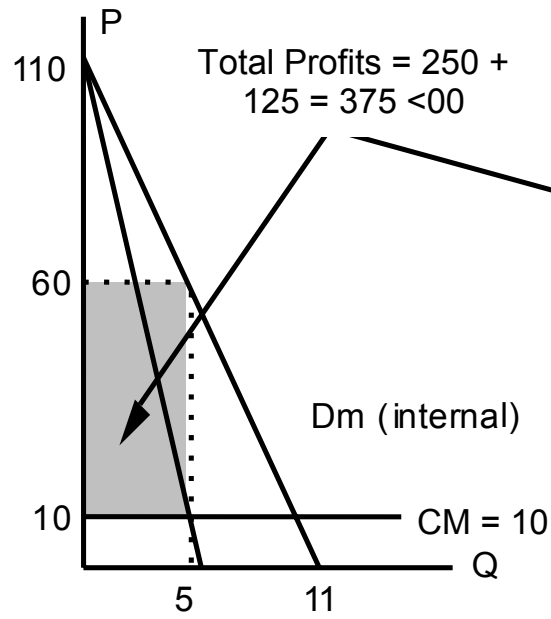
$$B_m + B_d = 375 \$ \lll \$500 \text{ with 10 units at a price } \$60$$

(note that if  $P = \$60$ , optimal level of  $Q$ , with  $B_d = 0$  and  $B_m = 500$ )

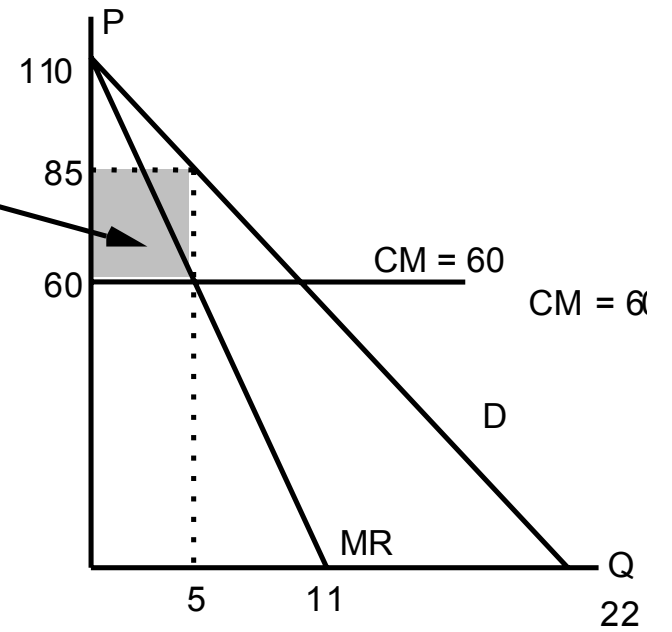
# Suboptimal transfer pricing: the “double marginalization” problem



a) Firm's optimum



b) Manufacturing



c) Distribution

# Franchising

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## Physical technology: Duality

### *Constraints in the production process:*

Service industries → Dispersed demand → diseconomies of scale in provision

Importance of local incentives

Demand mobility → Useful to provide uniform quality

*Economies of scale (in, e. g., process design, brand, advertising, etc.)*

## Contractual Technology (Organization)

*Branch: a “division” organized as expense, cost, profit or investment center*

*Franchise: the franchisee is paid the residual, the profit*

In pure networks?

In mixed networks?

*Relational contracting: Asymmetry, Self-enforcement*

*Analysis of common clauses:*

Exclusivity → service quality, information,

Mandatory purchases → quality; easy monitoring of sales

Commission → price discrimination, motivation of franchisor

*Example: Car dealerships. [See article.](#)*

Completion clauses

Monitoring clauses

Enforcement: Targets and Discounts