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KEY ISSUES IN APPLYING INCENTIVE PRICE REGULATION

Péter Kaderják

Director, REKK

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COMBINATION OF COST-PLUS REGULATION AND SOFT BUDGET CONSTRAINT

- Cost-plus regulation: regulated rates are set to cover reported (justified) costs plus rate of return on assets
- Soft budget constraint: spending of the regulated company is covered by tariff revenues and subsidies

Compare the two!

Discuss the incentives provided by the regimes!

Discuss the local situation!

EXAMPLE – FIXED PRICE CONTRACT

- I. Poor, badly-paid (civil servant) regulator goes abroad...
 - A) and gets a fixed per diem, all costs inclusive; no ex-post accounting is required (savings can be retained by him/her) .

Result?

our regulator uses public transport
eats sandwiches
stays at an inexpensive hotel and
keeps the rest of the daily allowance.

EXAMPLE – COST-PLUS CONTRACT

- I. Poor, badly-paid (civil servant) regulator goes abroad...
- B) and gets a fixed, reduced per diem (daily salary); all direct costs are refunded ex post.

Result?

our regulator takes taxi
eats in a restaurant
stays at an expensive hotel, so
he retains less money, but taxpayers pay more for this
journey.

1. Fixed price contracts provide sufficient incentives to reduce operating costs and increase productive efficiency
 - high-powered incentive scheme
2. Fixed price contracts might result in „too high” profits and distributive concerns may arise
 - might hurt allocative efficiency and fair welfare distribution
3. Cost-plus contract provides no incentive to improve productive efficiency
 - low-powered incentive scheme
4. The profit provided by the cost plus contract will not be „too high”
 - does not hurt allocative efficiency

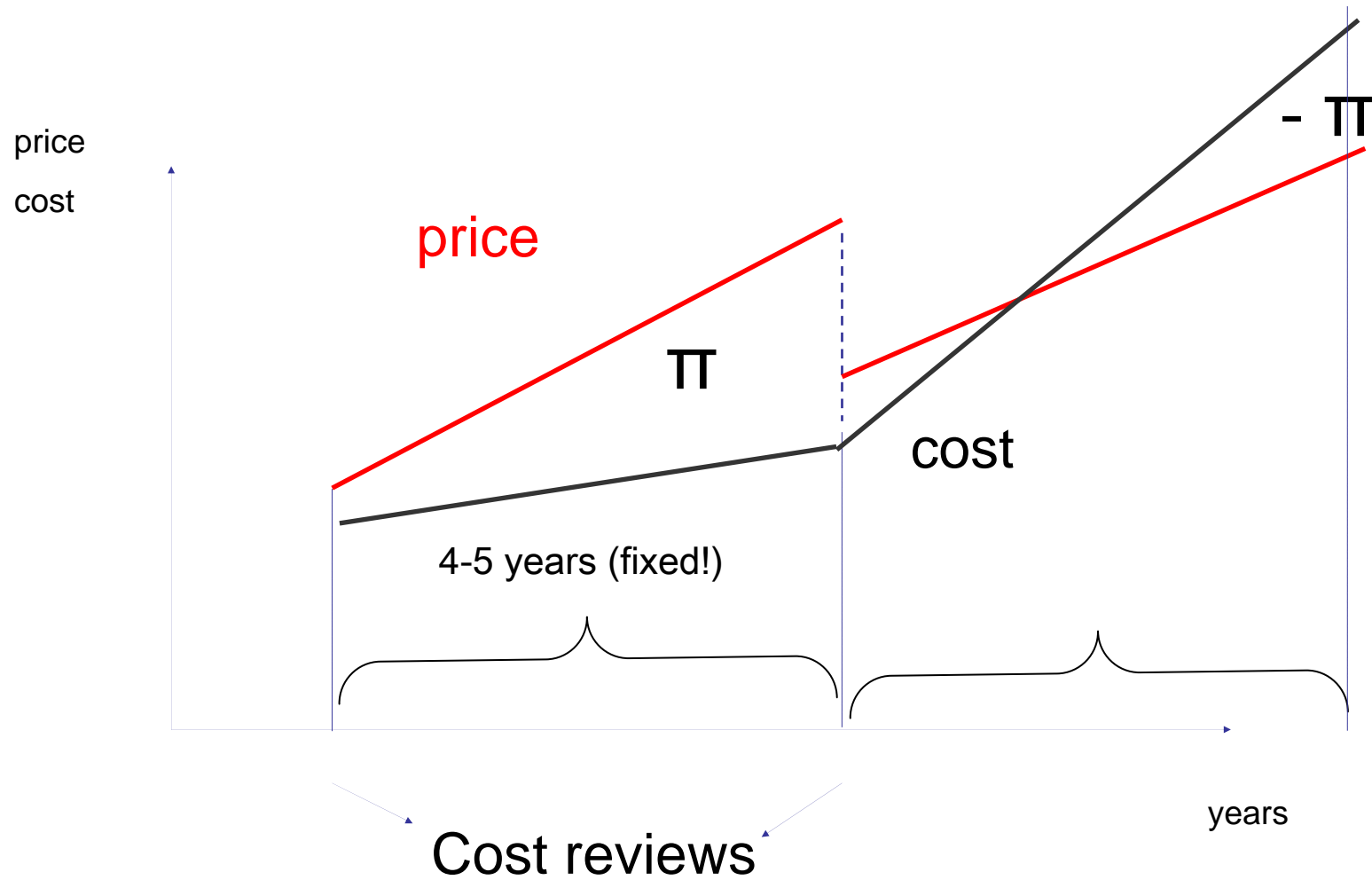
THE FALLACIES OF COST-PLUS REGULATION

- Motivation for over-investment (increased rate base) – ‘golden plating’
- No motivation to increase productive efficiency
- Continuous pressure for price increase (rare example of price decreases)
- No real pressure for selection
- Major source of fallacy: information asymmetry at the regulator’s side:
 - no up-to-date operating cost information,
 - no data on future business plans (investments, cost-reduction etc.),
 - obscure picture on consumer demand characteristics.

INCENTIVE PRICE REGULATION: FEATURE 1

*Rewarding (penalizing) regulated firms for better-
than-expected (worse-than-expected)
(economic) performance.*

THE SCHEME OF PRICE CAP REGULATION



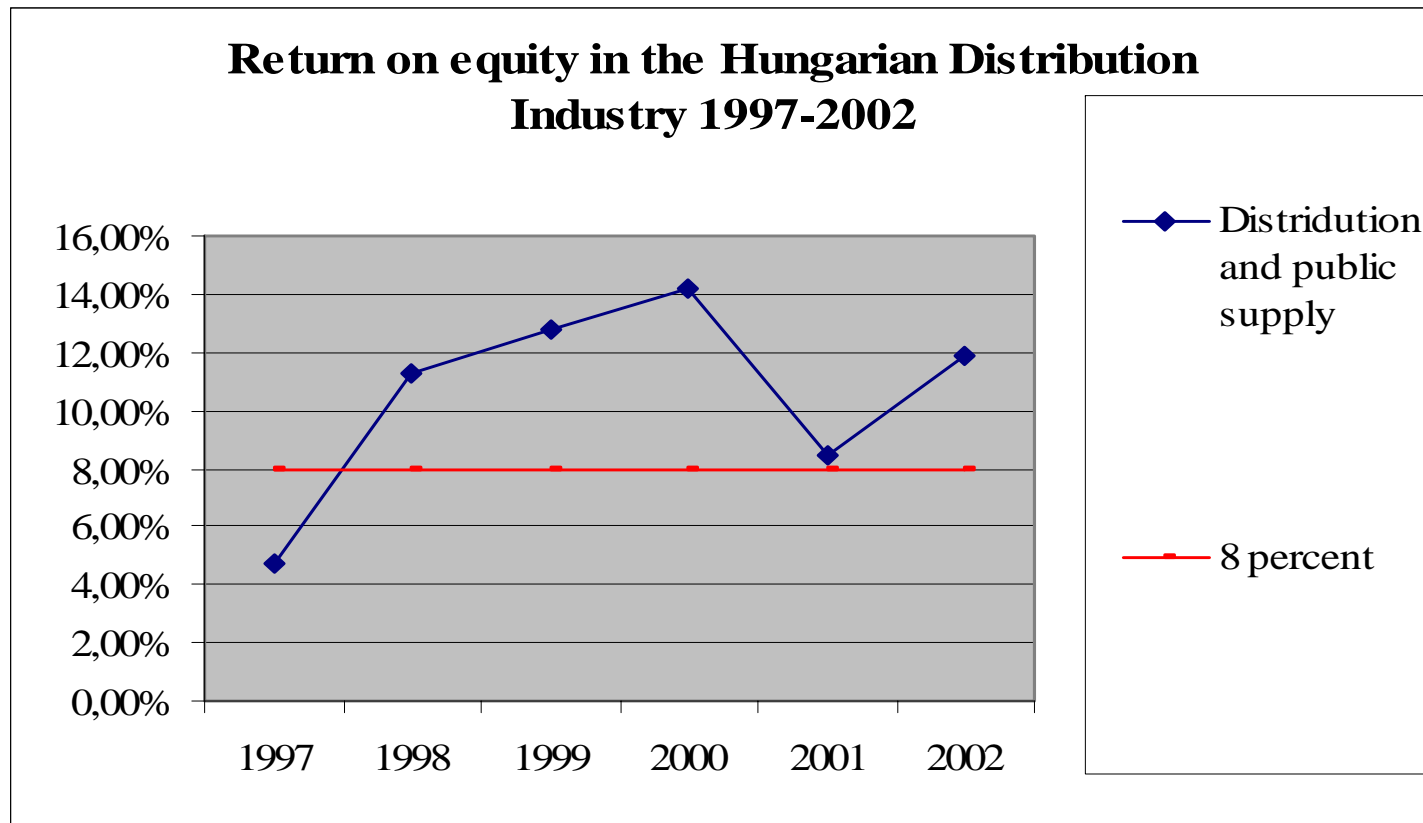
PRICE CAP REGULATION: SINGLE PRODUCT

- Pre-defined regulatory period (4-5 years) and pricing rule:

$$p_t = p_{t-1} * (1 + \text{CPI} - X)$$

- CPI: consumer price index (other price index is possible)
 - X: efficiency improvement requirement
-
- Transparency
 - Credibility is needed
 - Sharing of benefits from efficiency improvement among industry and consumers
 - Trade-off between incentive property and flexibility
 - E.g. what to do in times of sharply decreasing oil prices?

PRICE CAP: REGULATED *versus* ACTUAL RATE OF RETURN



Problem: to explain when actual return is >> proposed regulated return

IMPROVED PROFIT SHARING (SLIDING SCALE REGULATION)

- A system that shares the difference between proposed and actual return among producers and consumers:

$$s_a = s_t + h(s^* - s_t)$$

- s_a : rate of return built into the regulated price
- s^* : proposed (regulated) rate of return
- s_t : actual rate of return produced by the company before rate adjustment by the regulator
- The value of h falls between 0 and 1
- *Consider the case when $h = 0$*
- *Consider the case when $h = 1$*

PRICE CAP REGULATION: MULTIPRODUCT CASE

- Multi-product monopoly, but exact cost structure is unknown to the regulator
- Demand information available to the regulator may also be limited
- Under these conditions, it seems reasonable to delegate *some* pricing decisions to the firm itself
- However, pricing behaviour still needs to be controlled to restrict market power abuse
- These controls typically come in the form of constraints on weighted average price levels

PRICE CAP REGULATION: MULTIPRODUCT CASE

- N regulated product markets
- Prices: P_n [$n = 1, \dots, N$]
- Weights in the scheme: w_n (one for each product)
- The cap is a value: P^*
- Price cap constraint:

$$w_1 \times P_1 + w_2 \times P_2 + \dots + w_N \times P_N \leq P^*$$

- What effect does the choice of weights have on the „goodness” of the cap scheme?

PRICE CAPS: EXAMPLE WITH FIXED WEIGHTS

- Suppose it is known „historically” by the regulator, that prices P_1^* , ..., P_N^* yield demand levels Q_1^* , ..., Q_N^* and acceptably low profits for the monopoly
- Let us weight the prices in the cap scheme by the (historically known) demand quantities: $w_n = Q_n^*$
- Let us set the cap equal to the historic revenue (R^*) of the firm:
 - $P^* = P_1^* \times Q_1^* + \dots + P_N^* \times Q_N^* \equiv R^*$
- Thus, the monopolist can choose any prices it likes as long as the following holds:

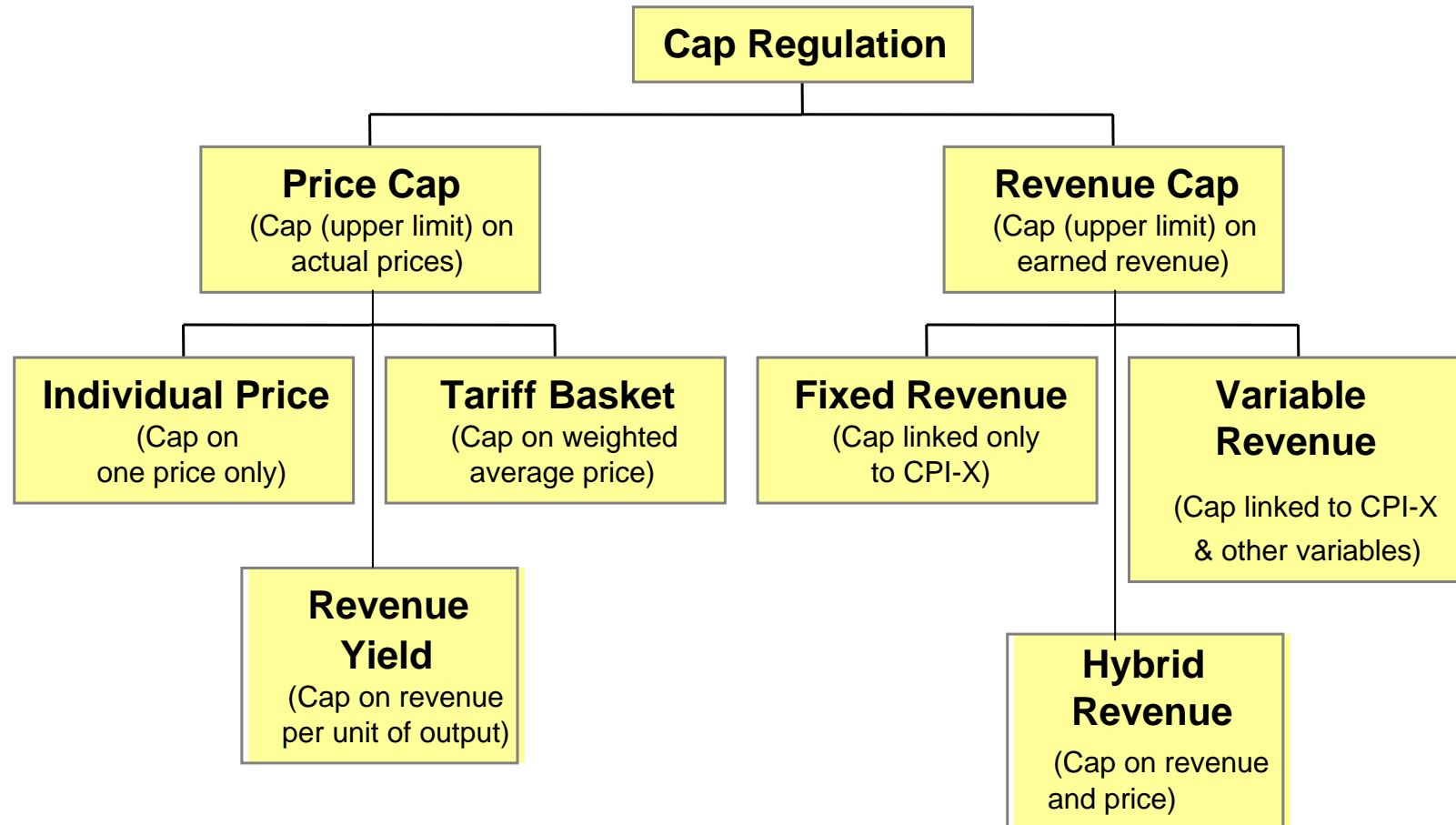
$$P_1 \times Q_1^* + \dots + P_N \times Q_N^* \leq R^*$$

- Consequences:
 - under the new set of prices, consumers (on aggregate) will still be able to maintain their old consumption level by spending an equal amount of (or less) money as before
 - as a result, they will be at least as well-off, and most likely better-off than historically
 - the firm can also increase its profits without harming the customers (on aggregate)
 - the regulator needs little information about either demand or cost conditions
- On the other hand:
 - some consumer classes may lose from the price cap scheme, while others will benefit from it

INCENTIVE PRICE REGULATION: FEATURE 2

Giving regulated firms partial freedom in setting tariffs

CAP-BASED REGULATION: AN OVERVIEW



Pros

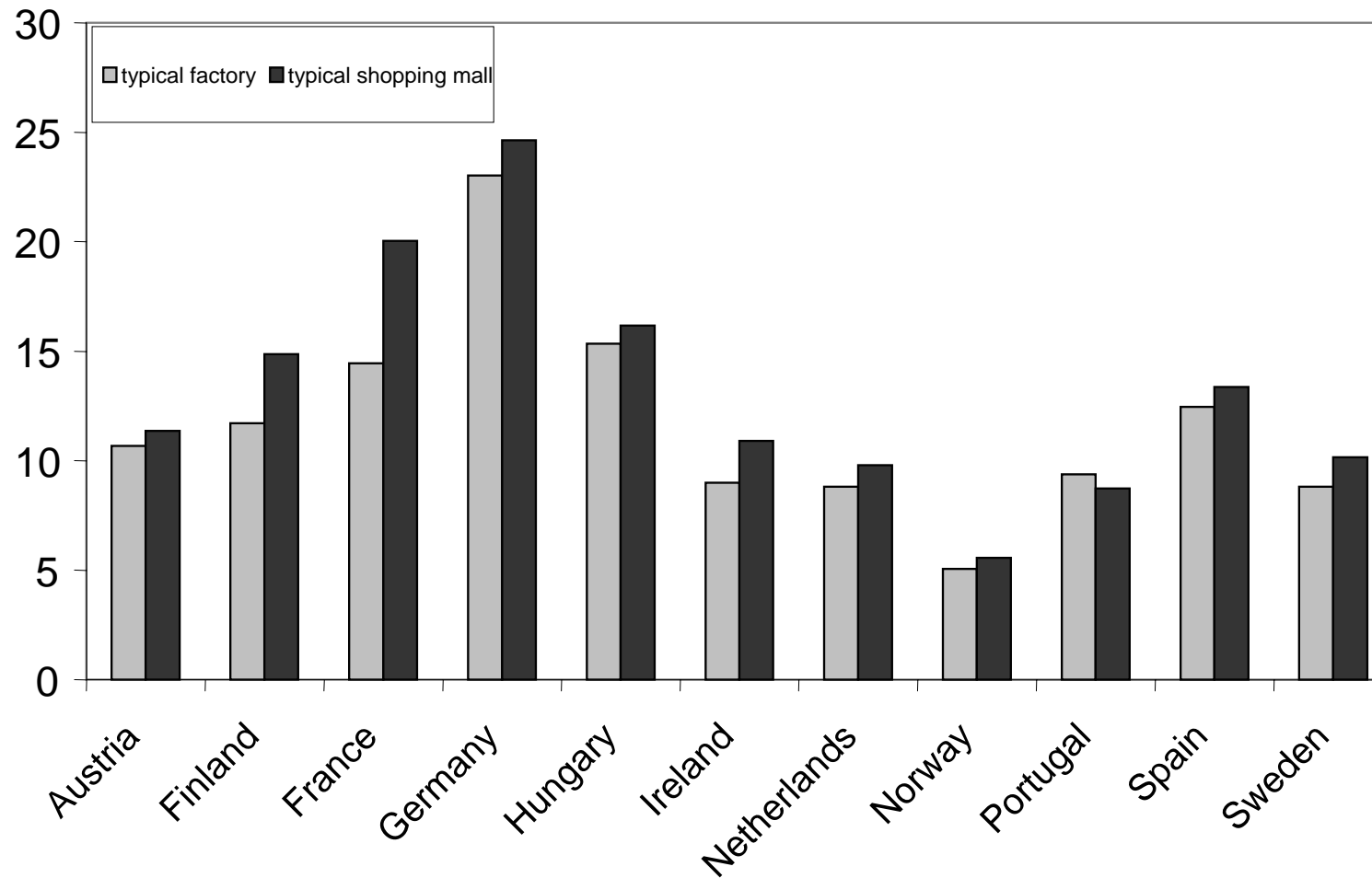
- Simple, clear incentives
- Balance between company and consumer interests under incomplete information
- Moderate resource and info needs for the regulator
- Extremely useful when company auditing systems are not well developed

Cons

- Starting price – cost review
- How to define X?
- Choice of inflation index
- Provides for inflation inertia in times of high inflation
- Political problems when real return deviates from regulated return
- Unfair profit sharing within the regulatory period
- Incentive for degrading service quality: $CPI-X+Q$

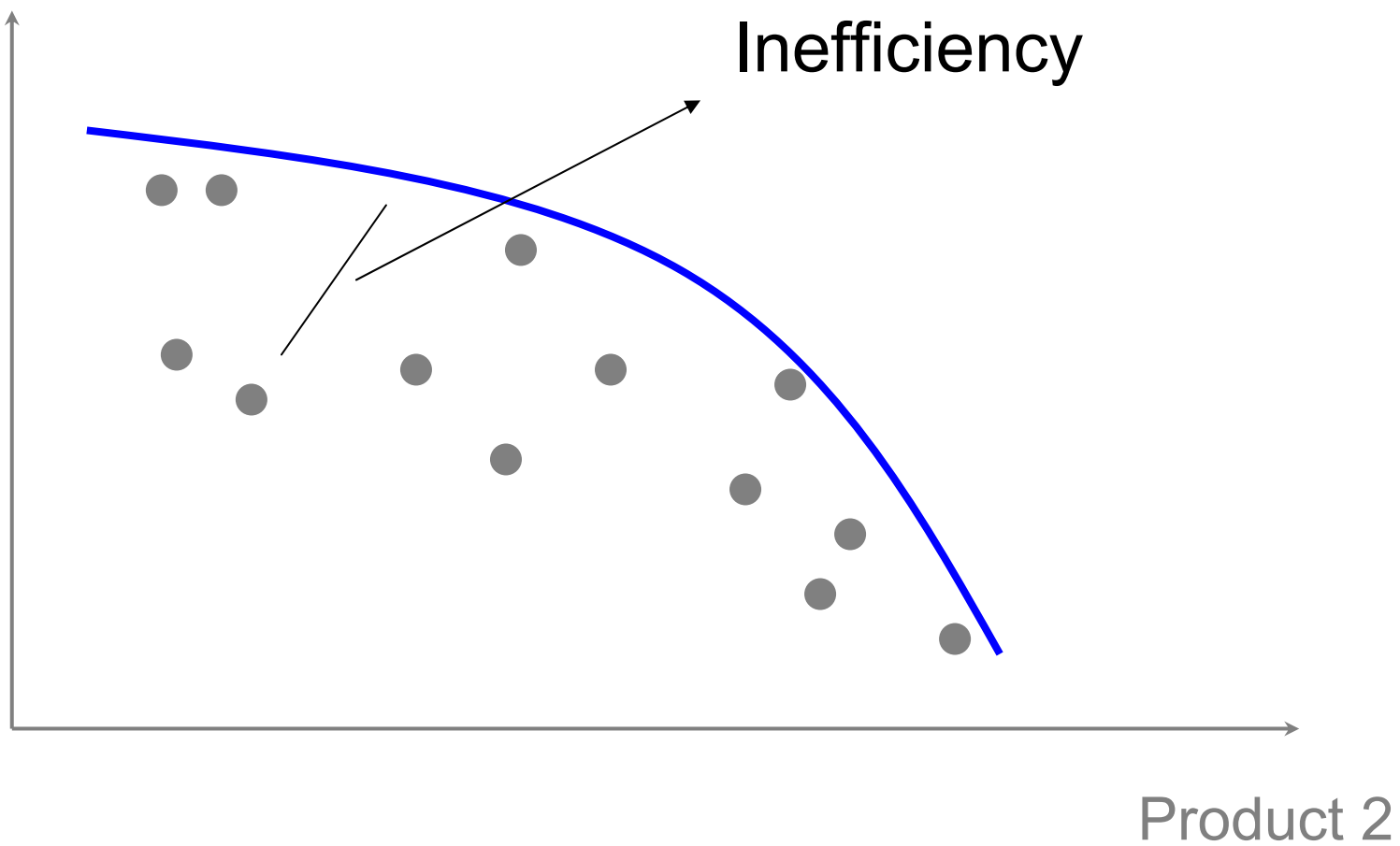
- Historic costs *versus* benchmarking
- Simple, single variable benchmarks (labour cost per kWh output, revenue / km line, etc.)
- Strong regulatory tool when a company wishes to hide performance results
- Has to be employed by much care – only for simple comparisons
- Legal background is to be taken into account – Dte example

MEDIUM VOLTAGE DISTRIBUTION TARIFFS, EURO/MWH



STOCHASTIC FRONTIER ANALYSIS

Product 1



- Productive and allocative efficiency
- Fixed-price (high powered) and cost-plus (low powered) contracts
- Price cap regulation
- Revenue cap regulation
- Sliding scale regulation
- Simple benchmarking
- Yardstick competition