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Incentives of compensating USO net cost

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Felix Gottschalk, Urs Trinkner, Eva Zuberbühler

Motivation

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Compensating USO net cost **destroys** incentive to increase efficiency

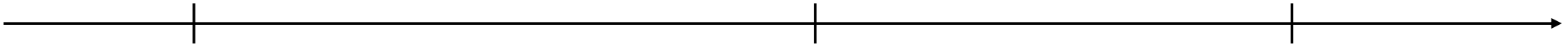
widespread intuition

Contradiction ?

Sharing efficiency gains between public and USP **maintains** incentives

economists' intuition

Our claim: No contradiction → if USO net cost are compensated, efficiency gains are shared



Ex ante determination of net cost (without renegotiation) ✓

Implementation of measure to
- reduce cost
- seizes growth

Ex post determination of net cost (correct height) ✓

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Effects of net cost compensation on incentives of the USP (overall profit)

Intuition behind example of an efficiency measure (cost reduction)

Overall profit in Benchmark without USO

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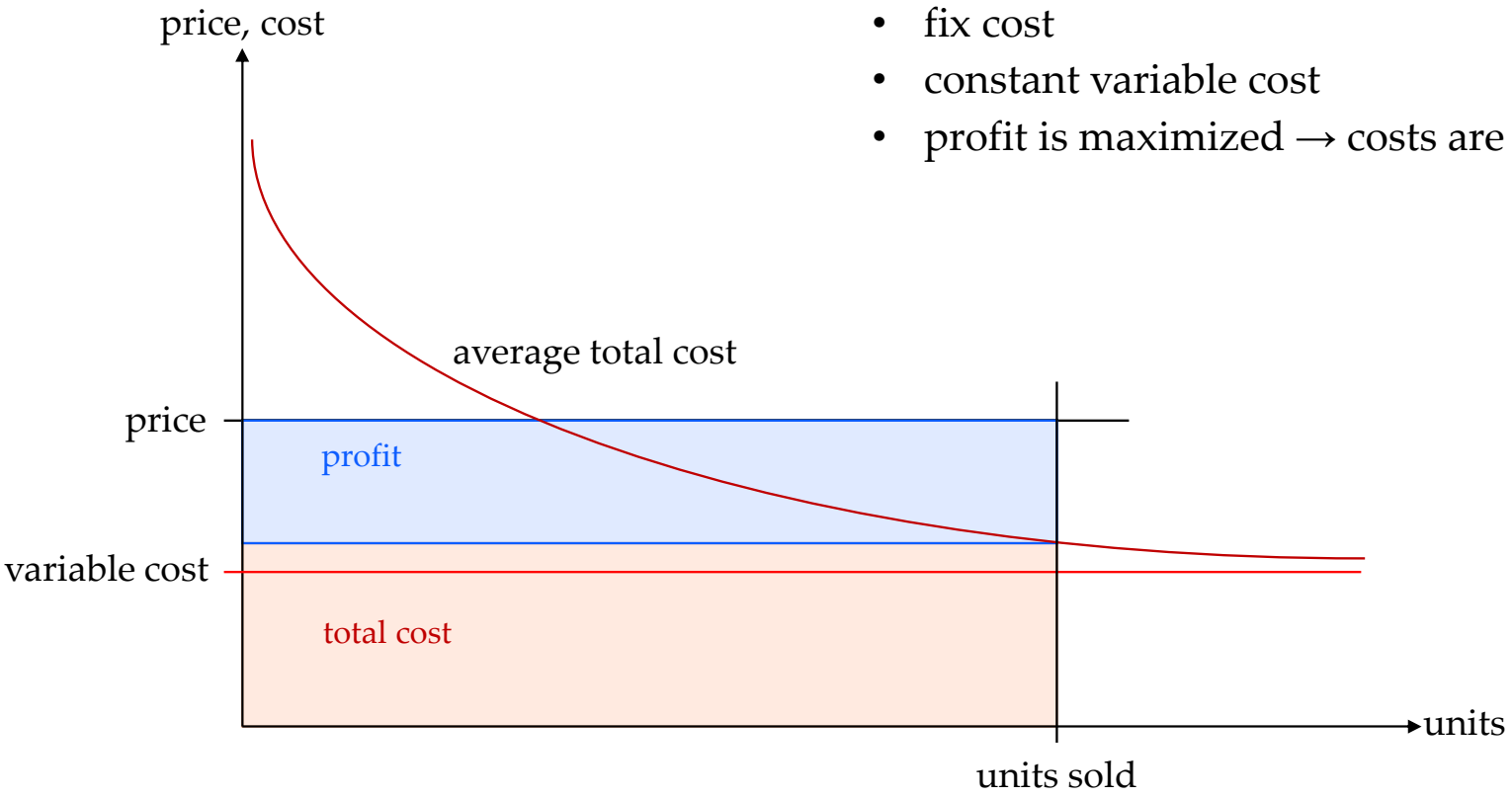
Assumptions of the benchmark:

- fix cost
- constant variable cost
- profit is maximized → costs are minimized



Overall profit in USO scenario

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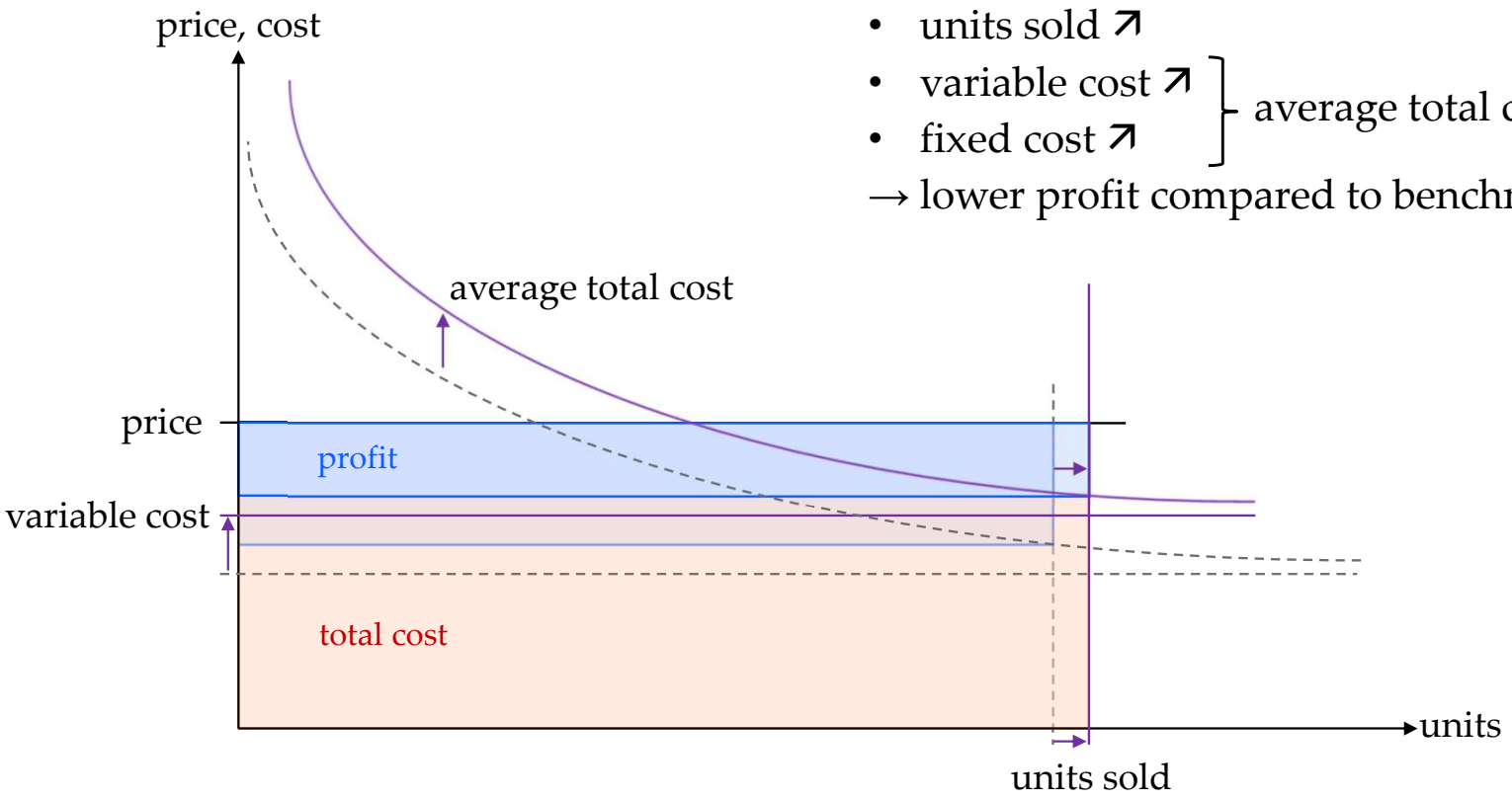
Assumptions of the USO scenario:

- units sold ↗
- variable cost ↗
- fixed cost ↗

} average total cost ↗

→ lower profit compared to benchmark



Net cost equals difference in profits

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$$\pi^{BM} - \pi^{USO} = NC \Leftrightarrow \pi^{USO} + NC = \pi^{BM}$$

→ USP is indifferent between benchmark and USO scenario

Efficiency measure in USO scenario…

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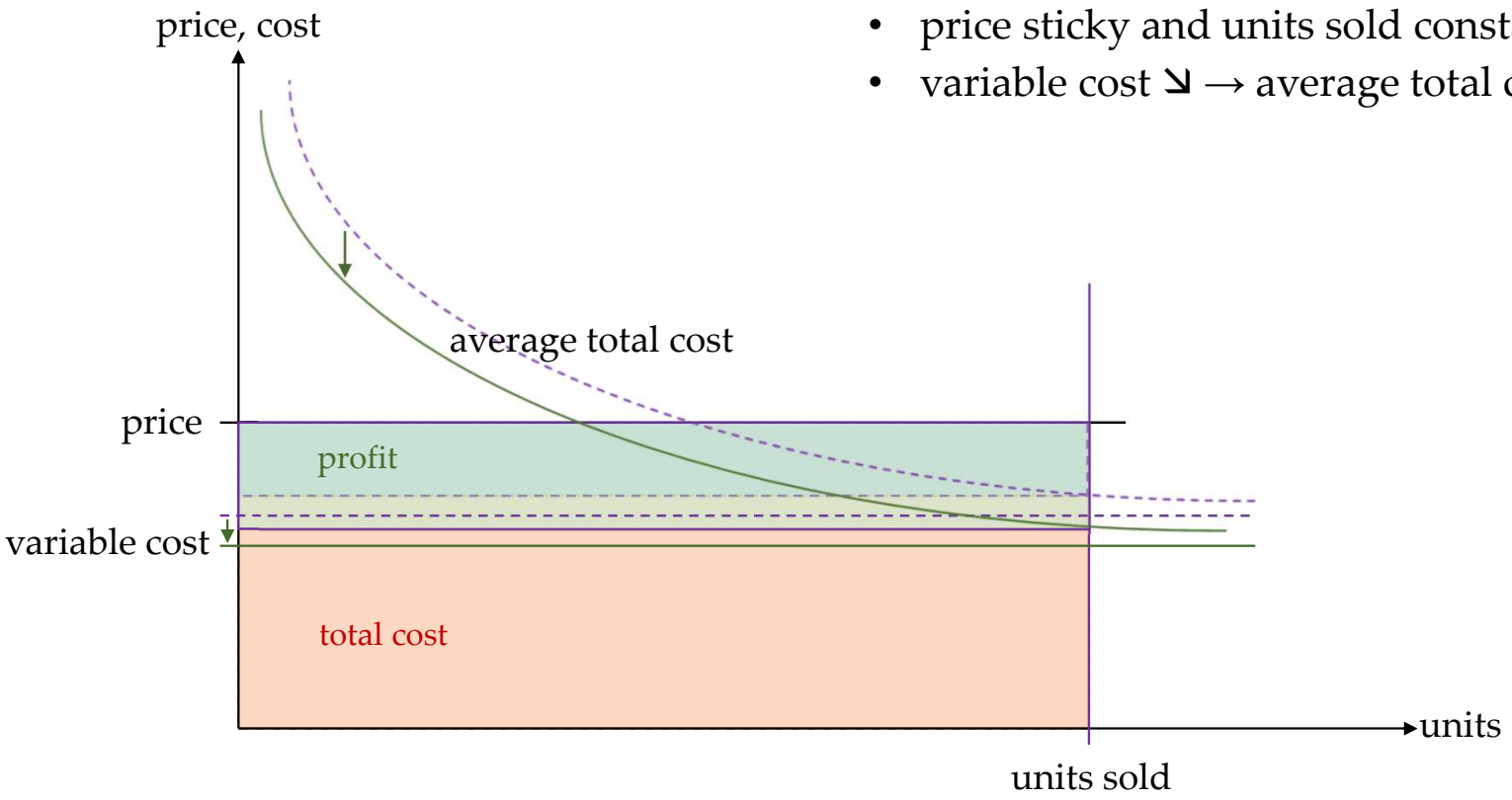
Example of an efficiency measure:

- price sticky and units sold constant
- variable cost ↘ → average total cost ↘

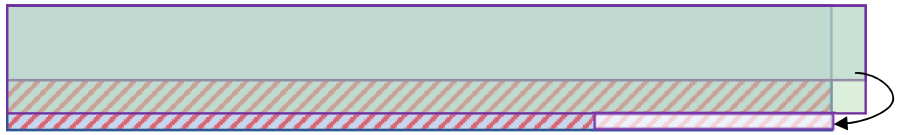


Efficiency measure in USO scenario…

…reduces net cost by the same amount

Therefore,
→ profit after net cost compensation remains the same
→ no (strict) incentive to implement efficiency measure

By definition of the **benchmark** in which **profit is maximized**



→ If a new technology for cost reduction is available in USO scenario, it would be implemented in benchmark anyway

Efficiency measures (correctly considered in both scenarios)…

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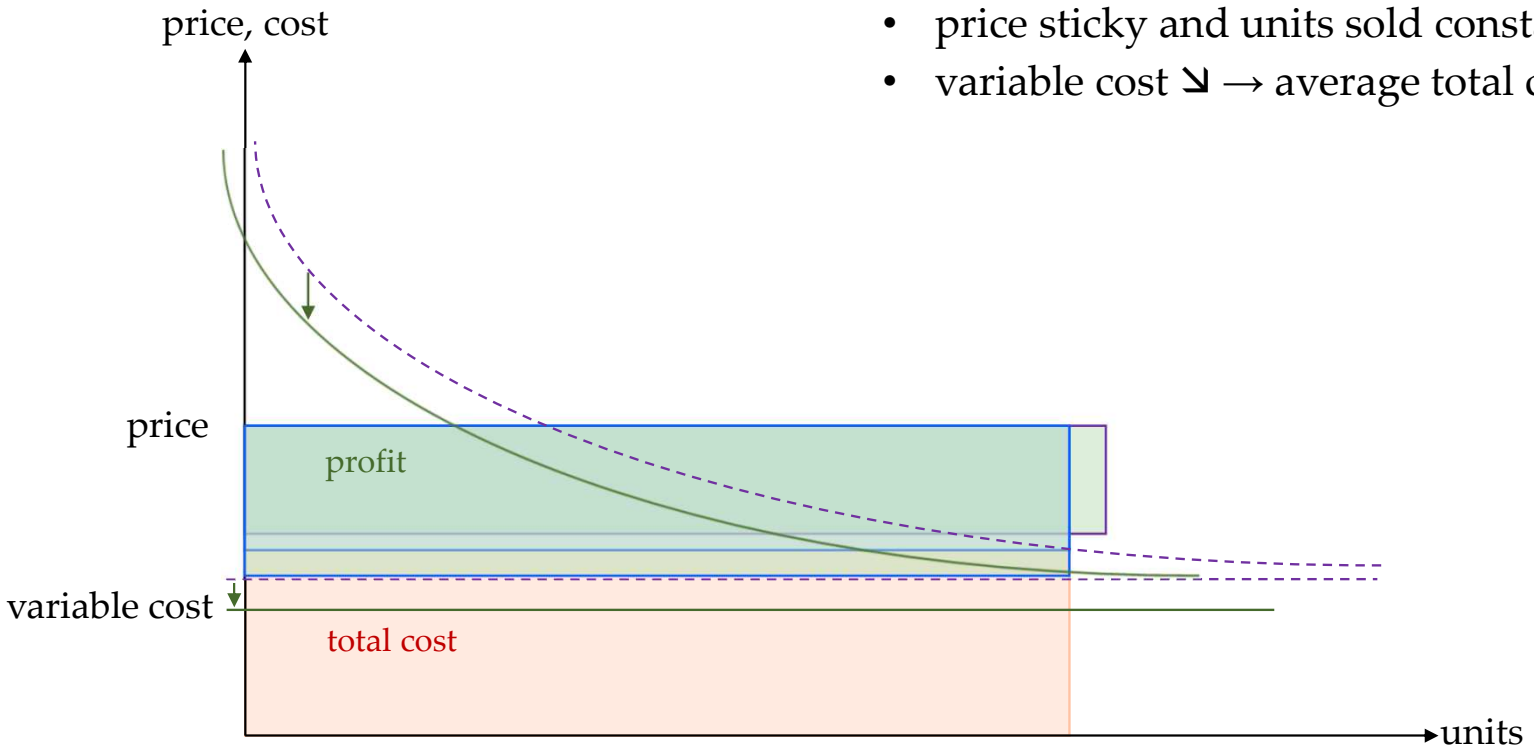
The same efficiency measure in benchmark:

- price sticky and units sold constant
- variable cost ↘ → average total cost ↘



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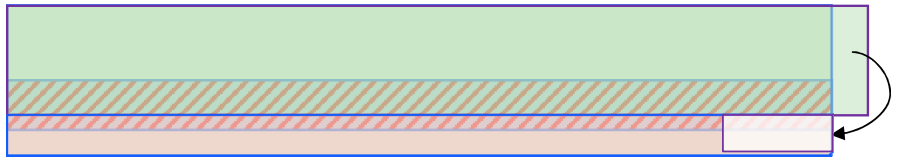
Efficiency measures (correctly considered in both scenarios)…

…reduce net cost and increase profits

Example: Reduction in variable cost of 1 EUR increases the profits in both scenarios (π^{BM}, π^{USO}) by the respective units sold (q)

$$\pi^{BM} + \underbrace{0.9 \cdot q^{USO}}_{\text{without USO less units are sold}} - (\pi^{USO} + q^{USO}) = \underbrace{NC - 0.1 \cdot q^{USO}}_{\text{net cost compensation after efficiency measure}}$$

→ Lower net cost



→ With net cost compensation **efficiency gains are shared** between public and USP

Profit of the USP (after compensation) is

$$\pi^{USO} + q^{USO} + (NC - 0.1 \cdot q^{USO}) = \underbrace{\pi^{USO} + NC}_{\text{profit before efficiency measure}} + 0.9 \cdot q^{USO}$$

→ Higher profit

(Interim) Conclusion

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With net cost compensation **efficiency gains are shared** between public and USP:

- USP's profit after implementation of measure is higher
  (also if net cost is determined after measure is implemented)
  → **Net cost compensation does not destroy efficiency incentives**

- Net cost of USO is lower if efficiency measure is implemented
  → **Public benefits from measure** (compared to ex ante determination of net cost)

- Analogously, **insights hold true for (profitable) growth measures**

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Effects of net cost compensation on incentives of different segments of the USP

Stylized example

Segments and calibration of the USO scenario

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Two segments:

- Regulated segment (**R**)
  - provision of universal services (e.g., letters)
- Unregulated segment (**U**)
  - provision of services without considerable net cost in case of an USO
  - some joint operational fixed costs with R (e.g., business parcels that use some common processes with letters as the collection in post offices)

USO: Changes relative to benchmark	**R**	**U1**
Cost side		
Variable costs per unit	+4.0%	+2.0%
Segment-specific fixed costs	+20.0%	+10.0%
Joint fixed costs	+10%	
Revenue Side		
Average Price	+4.0%	+2.0%
Units sold	-1.0%	-1.0%

General insights

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- Net cost compensation (also if determined after measure) does **not weaken incentives** for efficiency and (profitable) growth **in the segment that implements the measure**

- Effects on **other segment's incentives** crucially depend on **allocation rule of joint fix cost**:

		Effect on other segment's profit	
		Cost key	**Revenue key**
Measure in one segment	**Increase efficiency**	Negative ✓	Neutral ①
	Seize growth	Positive or neutral/negative ②	Positive ✓

① because of sticky price, and thus, constant units sold

②
- positive for volume increase (and sticky prices)
- neutral for price increase (and constant units sold)
- may be negative considering decreases in units sold due to price increase

General insights

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Thank you for your inputs and questions!