Definition of the relevant market

Lecture 2

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Section 1

What constitutes a market?

What constitutes a market?

Items constituting a market

- A market comprises all items which are substitutes.
- Market definition has several dimensions: product, location and time.

Problem

In practice you deal with imperfect substitutes.

What constitutes a market?

Example (for imperfect substitutes)

Is there a separate market for ...

- natural organic food stores or for supermarkets in general?
- fixed access to the public telephone network or for access in general (including mobile access)?
- matches and disposable lighters?
- original tires or for replacement tires?
- cans for all types of food or various markets for cans for different kinds of food?

Section 2

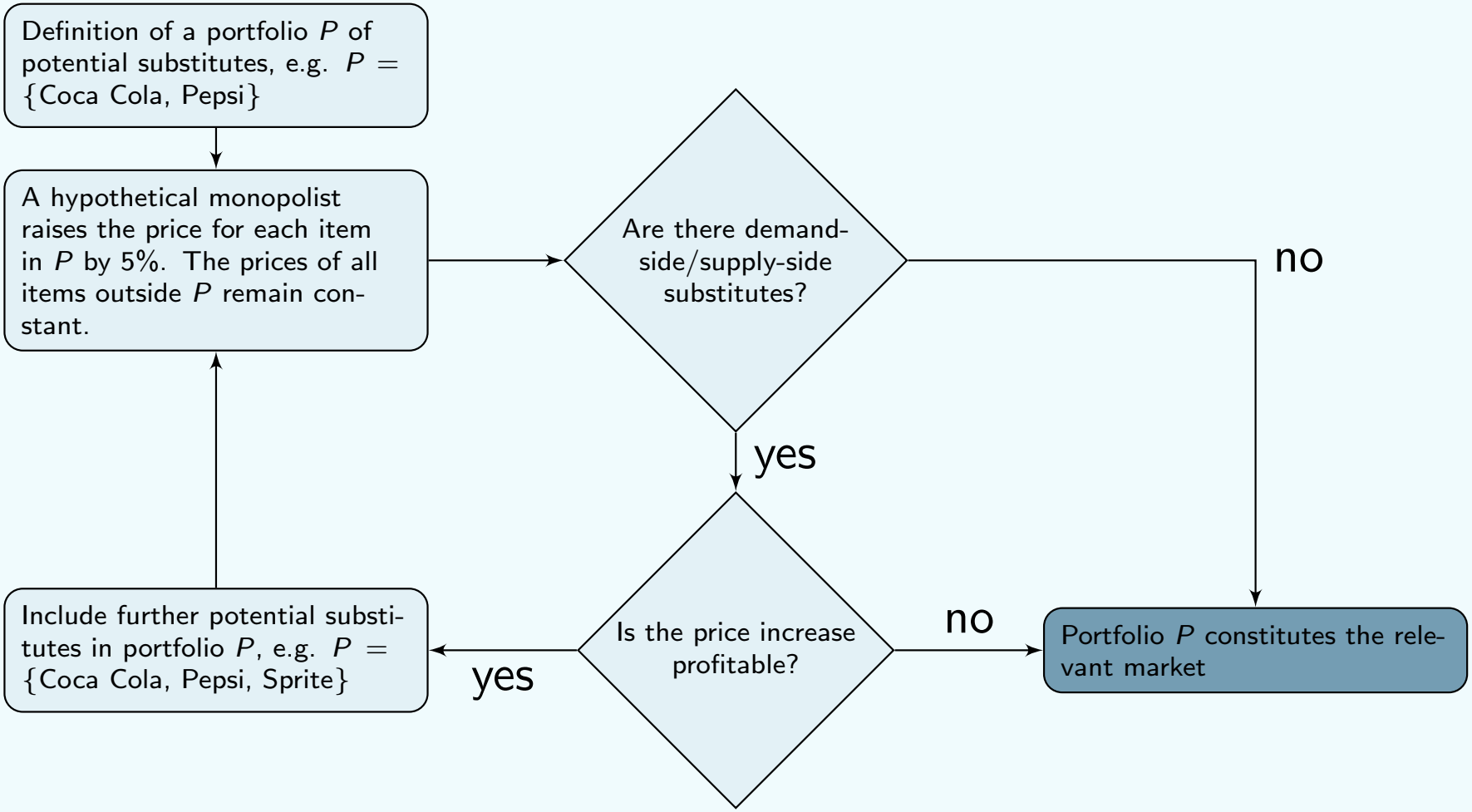
SSNIP test – Concept

SSNIP test – Concept

SSNIP-test as a method to define the relevant market

- SSNIP = Small but Significant Non-transitory Increase in Price
- Typically: price increase by 5% for at least 12 months
- You gradually extend the portfolio of a hypothetical monopolist until you find no more items so that a SSNIP for all items included in the portfolio would be profitable.

SSNIP test – Concept



SSNIP test – Concept

Criterion #1: Existence of substitution effects?	
product market	geographic market
Demand-side or supply-side substitution for other product?	Demand-side substitution for same product in another geographic area?

SSNIP test – Concept

Criterion #1: Hypothetical monopolist might loose demand when increasing the price ($\frac{\partial x(p)}{\partial p} < 0$). Why?

1. Consumers simply stop to consume HM's products.
2. Demand-side substitution: Consumers increase demand for products of HM's competitors.
3. Supply-side substitution: Competitors undercut HM's price.

SSNIP test – Concept

Criterion #2: Profitability of price increase?	
product market	geographic market
see next slide.	Would it be profitable for suppliers outside the consumer's current geographic area to offer substitutable products inside the consumer's current geographical area?

SSNIP test – Concept

Criterion #2: Opposing effects of price increase on the hypothetical monopolist's profit

$$\underbrace{\frac{\partial x(p)}{\partial p} \cdot p}_{①} + \underbrace{x(p)}_{②} - \underbrace{\frac{\partial C(x)}{\partial x} \cdot \frac{\partial x(p)}{\partial p}}_{③}$$

① effect of decreasing demand on revenues
② effect of increased price on revenues
③ effect of decreasing demand on costs

The price increase will be profitable if ② and ③ outweigh ①.

Section 3

SSNIP test – Cellophane fallacy

SSNIP test – Cellophane fallacy

Definition

What is the 'cellophane fallacy'? – (1.) Conditions.

- Analysed market is a monopoly.
- Monopolist has SMP.
- Monopolist's observed price is subject to one or more of following conditions:
  - Observed price is above the competitive level.
  - Demand is elastic ($-\infty < \varepsilon < -1$).
  - Observed price is profit-maximizing anyway ('Cournot price').

SSNIP test – Cellophane fallacy

Definition

What is the 'cellophane fallacy'? – (2.) The mistake.

The observed price is taken as the starting point for the SSNIP-test.

SSNIP test – Cellophane fallacy

Definition

What is the 'cellophane fallacy'? – (3.) False conclusions.

- The SSNIP of a hypothetical monopolist would not be profitable.
- There are substitutes.
- The monopoly is subject to competition.

SSNIP test – Cellophane fallacy

Elasticity of demand

Definition (elastic demand)

Revenues grow in response to a price increase.
$\Leftrightarrow$ Price increases faster than demand shrinks.
$\Leftrightarrow$ $\varepsilon \leq -1$

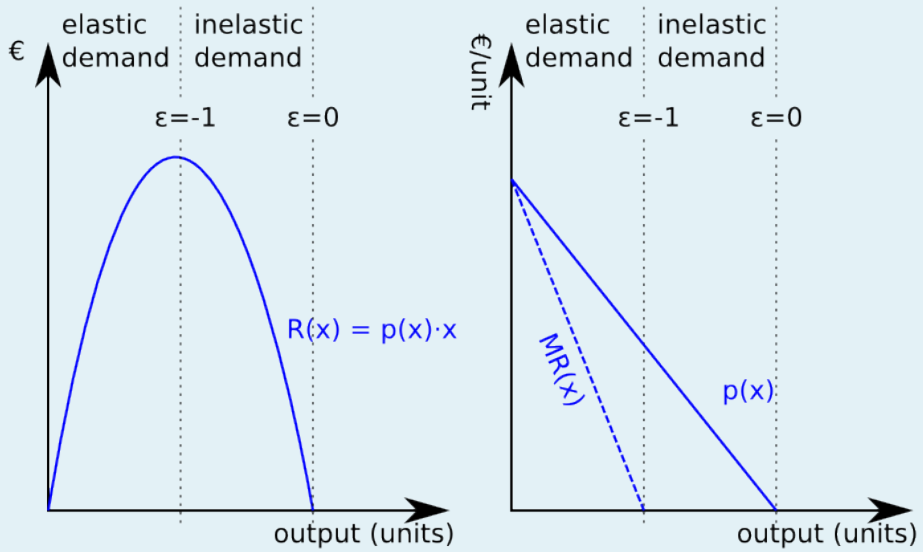
Definition (inelastic demand)

$-1 < \varepsilon \leq 0$

SSNIP test – Cellophane fallacy

Elasticity of demand

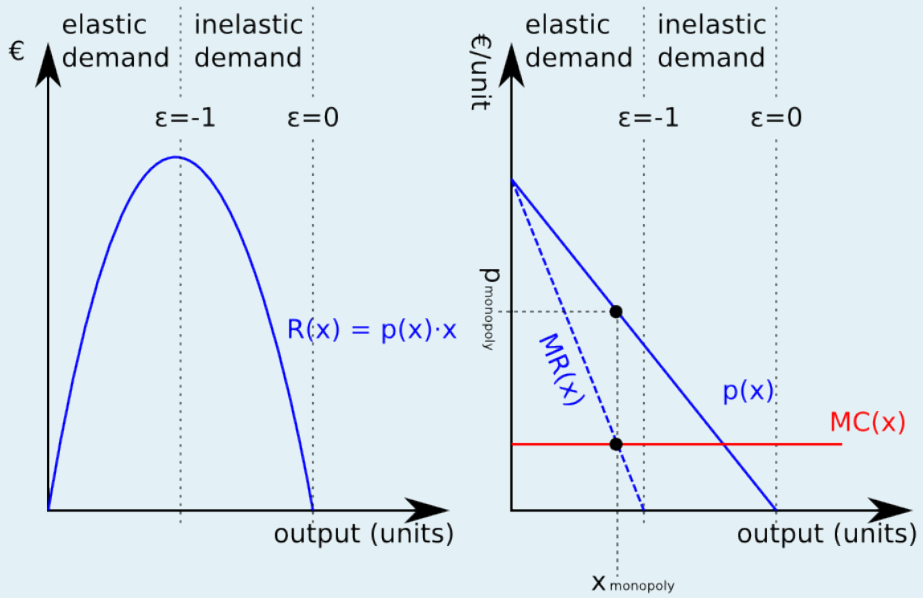
Price elasticity depends on current prices!



SSNIP test – Cellophane fallacy

Elasticity of demand

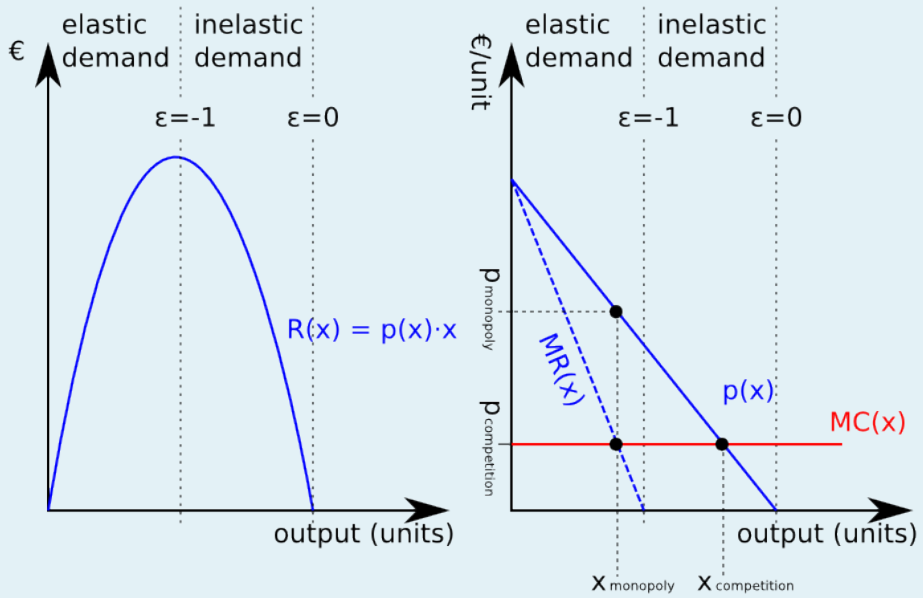
In an monopoly, demand is always elastic...



SSNIP test – Cellophane fallacy

Elasticity of demand

... while with competition, demand is always inelastic!



SSNIP test – Cellophane fallacy

Conclusion

How to avoid the 'cellophane fallacy'?

Take the hypothetical price level as starting point for the SSNIP-test...:

- ...which would apply if there were no barriers to market entry.
- ...which would match with average costs ($p = AC$).

Section 4

SSNIP test in practice

SSNIP test in practice

Problem

You do not know too much about the incumbent's costs.

How do you proceed?

SSNIP test in practice

Solution

Two simplistic *equivalent* approaches

1. Critical loss of demand
2. Critical price-elasticity of demand

SSNIP test in practice

Assumptions

Assumptions

1. The hypothetical monopolist has a linear cost structure:

$$C(x) = c \cdot x \Rightarrow \frac{\partial C(x)}{\partial x} = \frac{C(x)}{x} = c$$

2. The price is increased by the rate t (the SSNIP):

$$t = \frac{\Delta p}{p_0} \Leftrightarrow p_1 = p_0 \cdot (1 + t)$$

SSNIP test in practice

Assumptions

Assumptions – continued

3. The profit margin m is known:

$$m = \frac{p_0 - c}{p_0}$$

SSNIP test – Application in practice

Critical loss of demand

Critical loss of demand

Sufficient condition for a profitable SSNIP:

> Actual loss (AL) of demand is not bigger than critical loss (CL) of demand.

The actual loss is to be empirically measured.

SSNIP test – Application in practice

Critical loss of demand

Critical loss of demand

Sufficient condition for a profitable SSNIP:

$$\begin{aligned} & p_0 \cdot x(p_0) - c \cdot x(p_0) && \leq p_1 \cdot x(p_1) - c \cdot x(p_1) \\ \Leftrightarrow \quad & AL && \leq CL \end{aligned}$$

with

$$AL = \frac{\Delta x}{x(p_0)}$$

$$CL = \frac{t}{m + t}$$

SSNIP test – Application in practice

Critical price-elasticity of demand

Critical loss of demand

Sufficient condition for a profitable SSNIP:

> The actual elasticity of demand (ε) of demand is below the critical elasticity.

SSNIP test – Application in practice

Critical price-elasticity of demand

Critical loss of demand

Sufficient condition for a profitable SSNIP:

$$\begin{aligned} & AL & \leq CL \\ \Leftrightarrow \quad & \varepsilon & \leq \varepsilon_{crit} \end{aligned}$$

with

$$\begin{aligned} \varepsilon &= \frac{\Delta x / x(p_0)}{\Delta p / p_0} \\ \varepsilon_{crit} &= \frac{1}{m + t} \end{aligned}$$